The PHOTOFACT Servicer

SET 428 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JAN. 15, 1959

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TELEVISION RECEIVERS	
RCA VICTOR	
Chassis KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, BW, KRK83A, KRK84A	428-1
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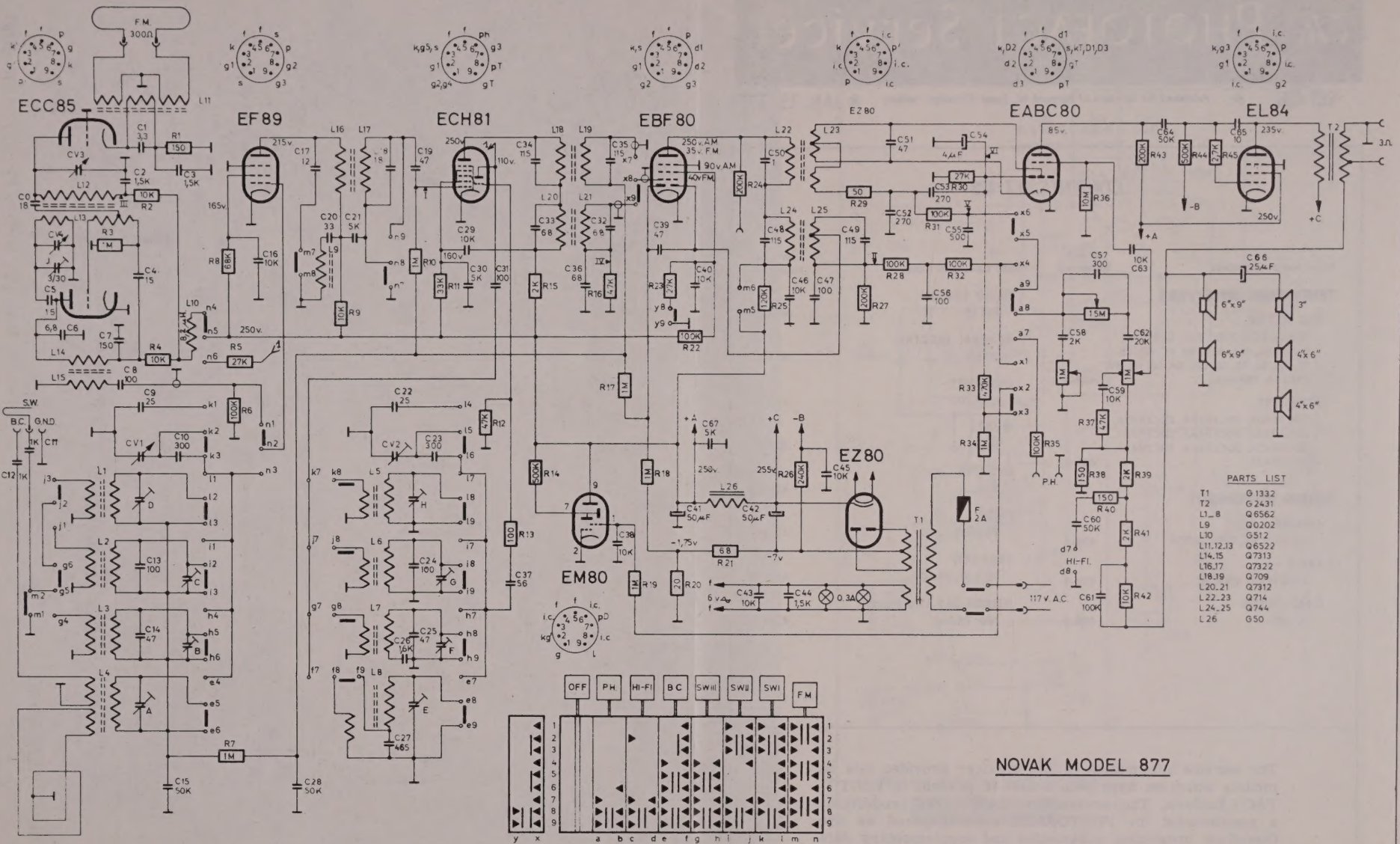
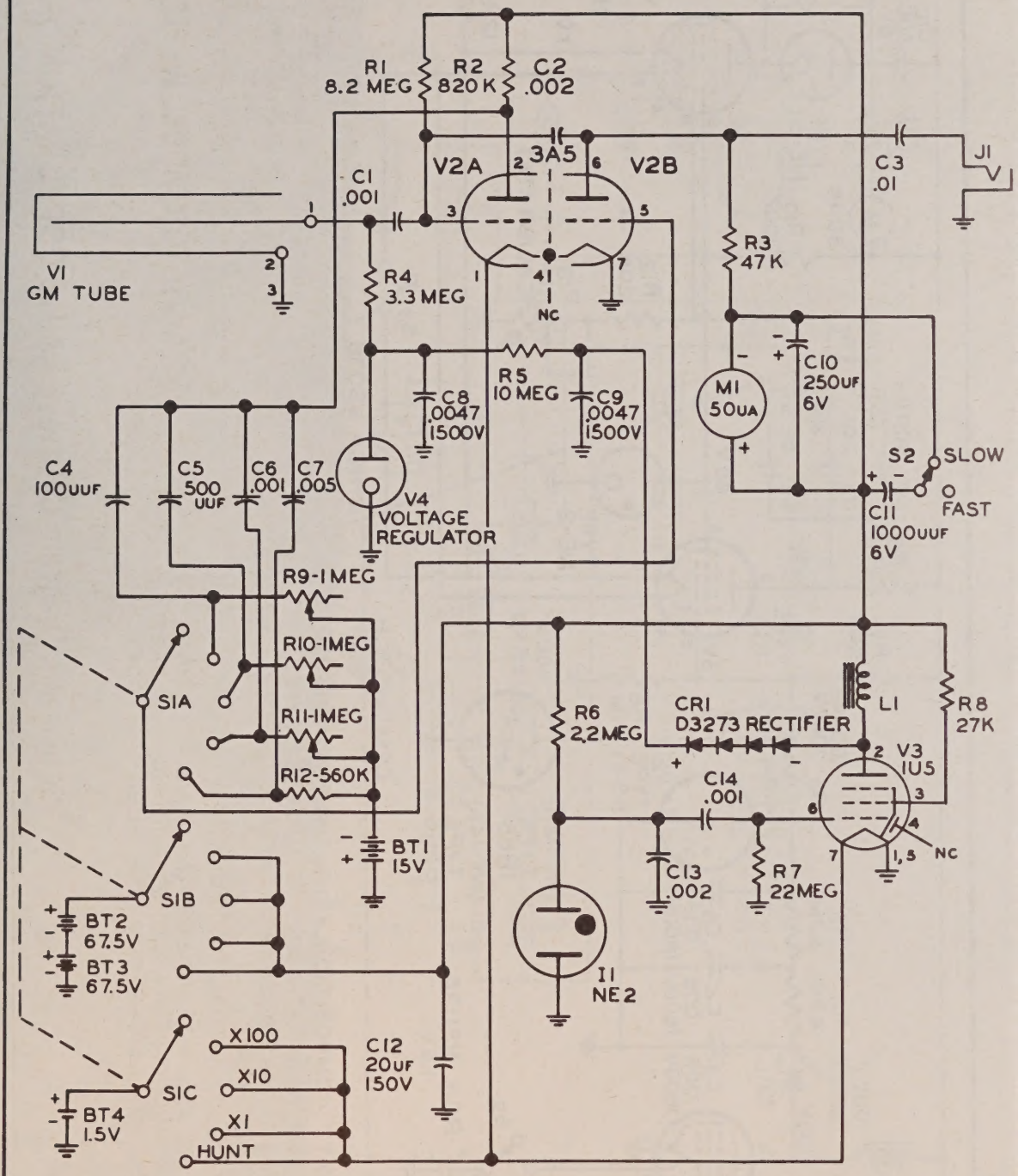
The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.



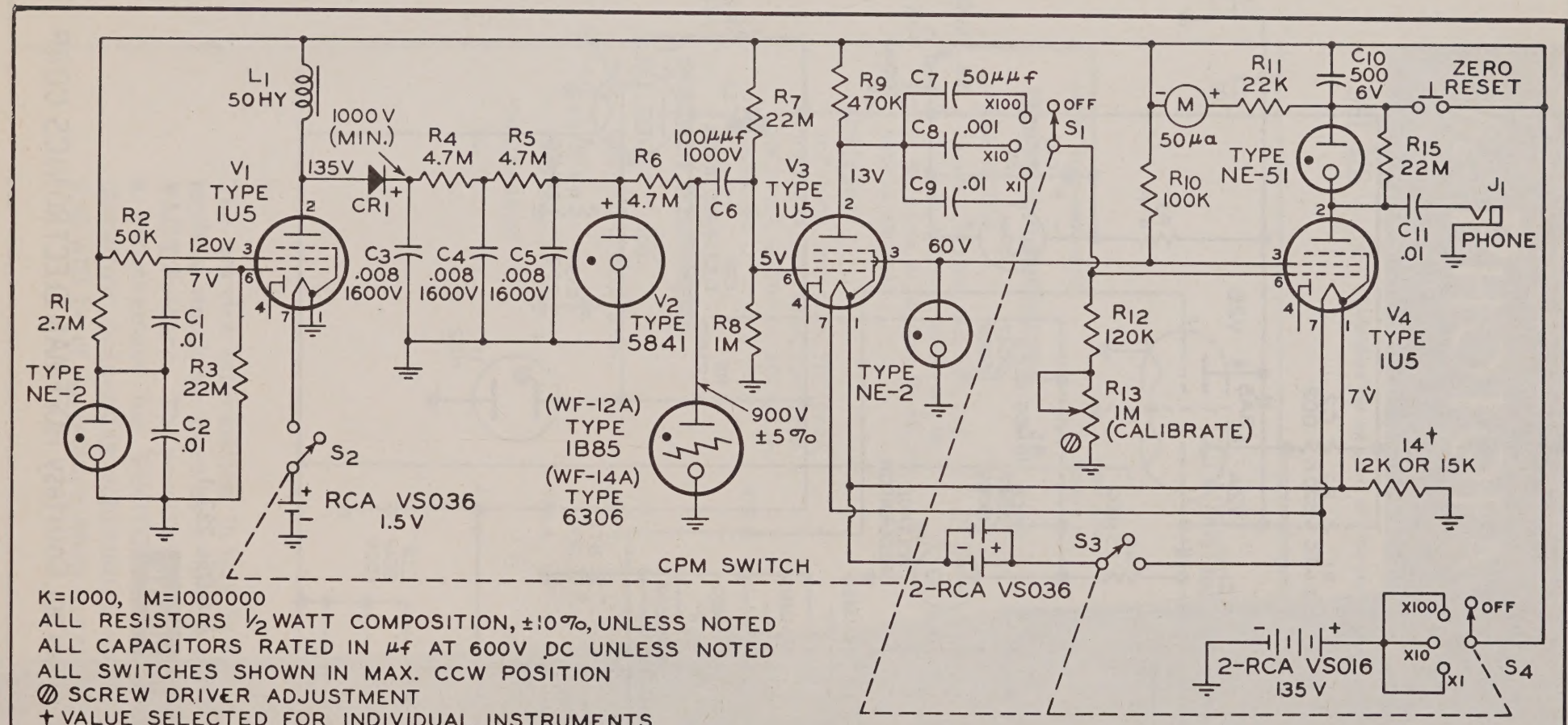
Schematic Diagram Courtesy NOVAK RADIO CORP.



HOFFMAN HUNTER, MODEL 223-1

GEIGER COUNTER

Schematic Diagram Courtesy HOFFMAN ELECTRONICS CORP



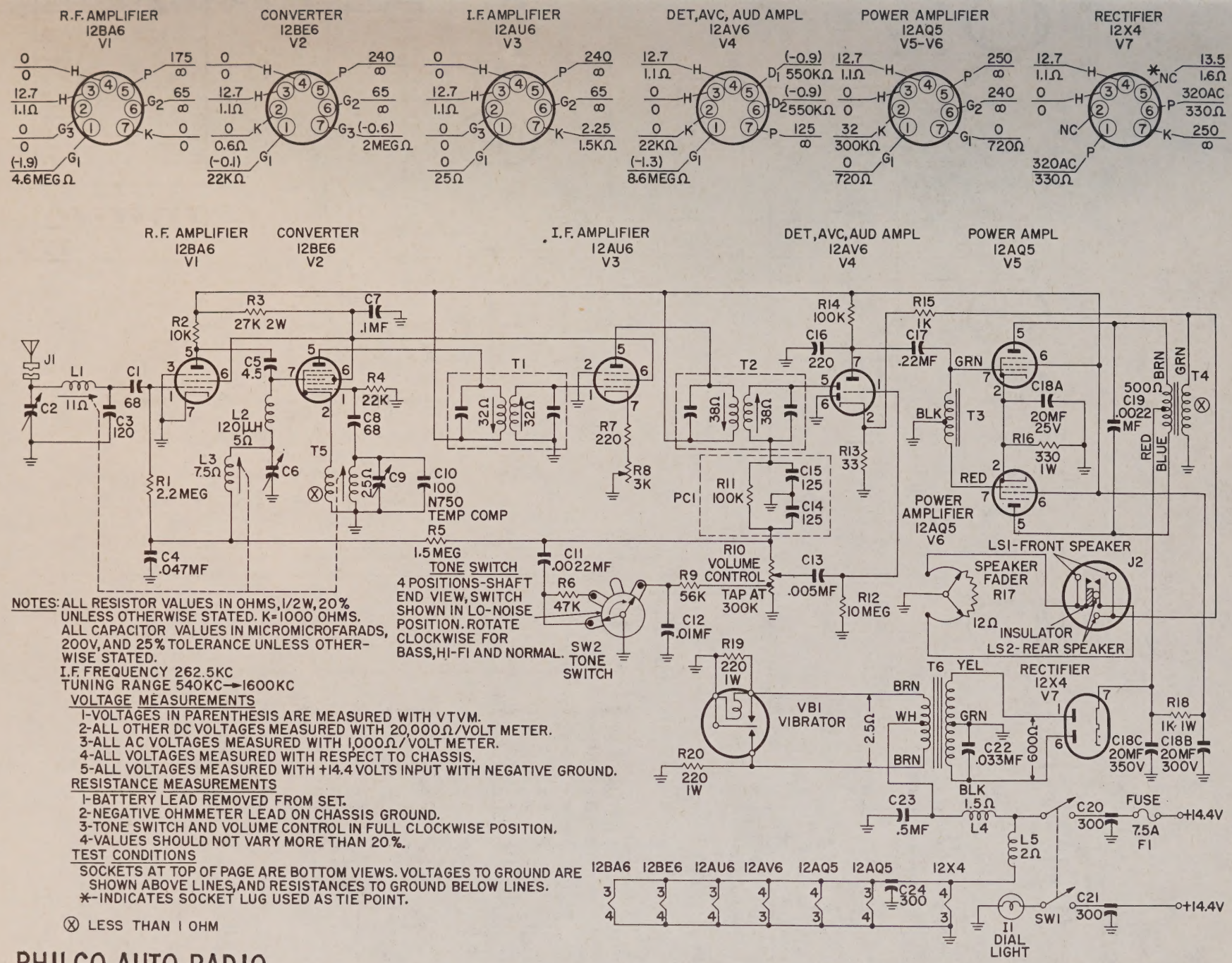
K=1000, M=1000000
ALL RESISTORS ½ WATT COMPOSITION, ±10%, UNLESS NOTED
ALL CAPACITORS RATED IN μf AT 600V DC UNLESS NOTED
ALL SWITCHES SHOWN IN MAX. CCW POSITION
⊘ SCREW DRIVER ADJUSTMENT
† VALUE SELECTED FOR INDIVIDUAL INSTRUMENTS

ALL VOLTAGES ARE DC AND MEASURED WITH A VOLTOHMYST.® VOLTAGES SHOULD HOLD WITHIN ±20%. USE HIGH-VOLTAGE PROBE FOR MEASURING GEIGER-COUNTER TUBE VOLTAGES.

RCA VICTOR MODEL WF-12A, WF-14A

GEIGER COUNTER

Schematic Diagram Courtesy RADIO CORPORATION OF AMERICA



NOTES: ALL RESISTOR VALUES IN OHMS, 1/2W, 20% UNLESS OTHERWISE STATED. K=1000 OHMS. ALL CAPACITOR VALUES IN MICROMICROFARADS, 200V, AND 25% TOLERANCE UNLESS OTHERWISE STATED.

I.F. FREQUENCY 262.5KC

TUNING RANGE 540KC→1600KC

VOLTAGE MEASUREMENTS

1-VOLTAGES IN PARENTHESIS ARE MEASURED WITH VTVM.
2-ALL OTHER DC VOLTAGES MEASURED WITH 20,000Ω/VOLT METER.
3-ALL AC VOLTAGES MEASURED WITH 1,000Ω/VOLT METER.
4-ALL VOLTAGES MEASURED WITH RESPECT TO CHASSIS.
5-ALL VOLTAGES MEASURED WITH +14.4 VOLTS INPUT WITH NEGATIVE GROUND.

RESISTANCE MEASUREMENTS

1-BATTERY LEAD REMOVED FROM SET.
2-NEGATIVE OHMMETER LEAD ON CHASSIS GROUND.
3-TONE SWITCH AND VOLUME CONTROL IN FULL CLOCKWISE POSITION.
4-VALUES SHOULD NOT VARY MORE THAN 20%.

TEST CONDITIONS

SOCKETS AT TOP OF PAGE ARE BOTTOM VIEWS. VOLTAGES TO GROUND ARE SHOWN ABOVE LINES, AND RESISTANCES TO GROUND BELOW LINES.
*-INDICATES SOCKET LUG USED AS TIE POINT.

Ⓧ LESS THAN 1 OHM

PHILCO AUTO RADIO

MODEL M-5741

Schematic Diagram Courtesy PHILCO RADIO CORP.

PHOTOFACT* Folder

with CIRCUITRACE*

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A

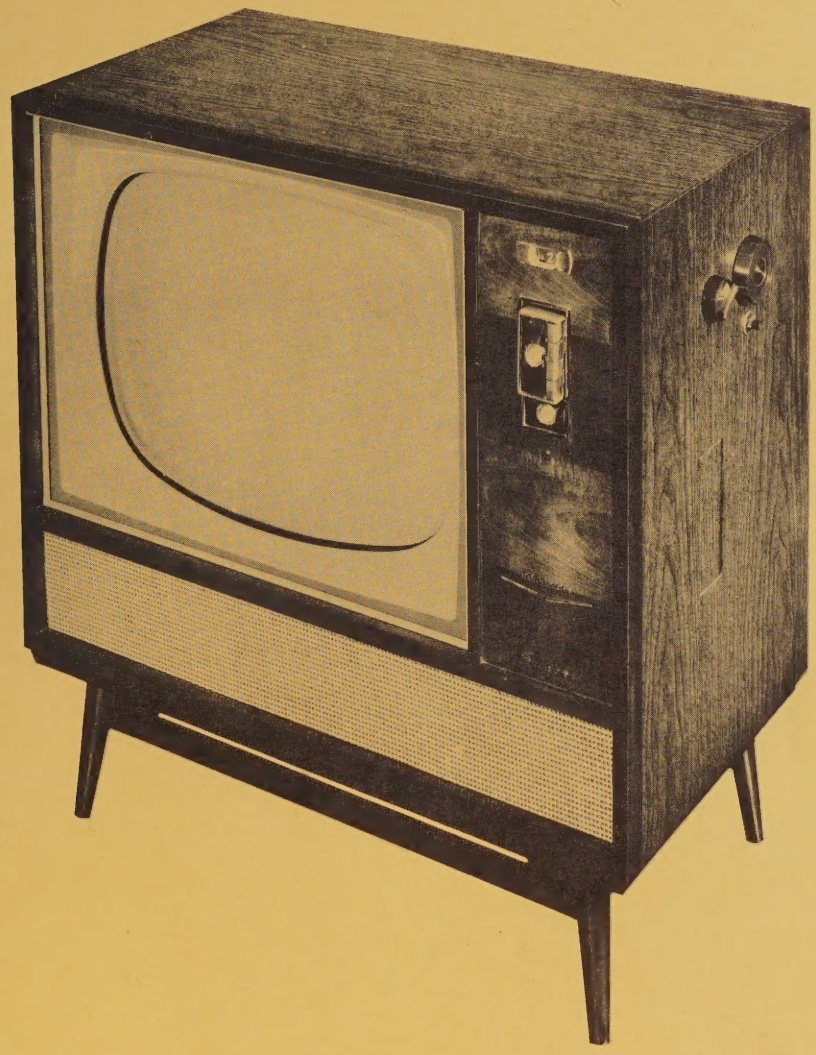
IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A



MODEL 21RT9655 (Ch. KCS122-BAB)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type knobs from the side.
2. Remove 12 wood screws and 1 retaining clip holding rear cover. Remove rear cover.
3. Remove picture tube socket, yoke, tuner, and remote control unit plug, speaker and pilot light leads.
4. Remove 1 metal screw located under On-Off Volume control holding it to cabinet.
5. Remove 2 metal screws holding side control bracket.
6. Remove 2 hex nuts holding chassis at the top.
7. Remove 2 metal screws holding chassis at bottom.
8. Partially remove chassis; remove HV lead; remove chassis from cabinet.

MODEL 21RT9655 (Ch. KCS122-BAB)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		21T9132, 21T9135, 21T9137	KCS122BA
		21RT9632U, 21RT9635U, 21RT9637U	KCS122BAA
		21RT9655, 21RT9656, 21RT9657	KCS122BAB
		21RT9655U, 21RT9656U, 21RT9657U	KCS122BAC
		21T9396, 21T9397, 21T9399	KCS122BAD
		21T9396U, 21T9397U, 21T9399U	KCS122BAE
		21T9435, 21T9436, 21T9437	KCS122BAF
		21T9435U, 21T9436U, 21T9437U	KCS122BAH
		21T9132U, 21T9135U, 21T9137U	KCS122BB
		21T9152, 21T9155, 21T9156, 21T9157	KCS122BC
		21T9152U, 21T9155U, 21T9156U, 21T9157U	KCS122BD
		21T9235M, 21T9236M, 21T9237M, 21T9238M	KCS122BE
		21T9235MU, 21T9236MU, 21T9237MU, 21T9238MU	KCS122BF
		21T9255M, 21T9256M, 21T9257M, 21T9258M	KCS122BH
		21T9255MU, 21T9256MU, 21T9257MU, 21T9258MU	KCS122BJ
		21T9315, 21T9316, 21T9317, 21T9318, 21T9335, 21T9337, 21T9339, 21T9415, 21T9417	KCS122BK
		21T9315U, 21T9316U, 21T9317U, 21T9318U, 21T935U, 21T9337U, 21T9339U, 21T9415U, 21T9417U	KCS122BL
		21T9355, 21T9356, 21T9357	KCS122BM
		21T9355U, 21T9356U, 21T9357U	KCS122BN
		21T9225M, 21T9226M, 21T9227M	KCS122BP
		21T9225MU, 21T9226MU, 21T9227MU	KCS122BR
		21RT9632, 21RT9635, 21RT9637	KCS122BW
		21RT9632, U, 21RT9635, U, 21RT9637, U, 21RT9655, U, 21RT9656, U, 21RT9657, U — Remote Receiver	KCS83A
		Remote Transmitter	KCS84A

MANUFACTURER	Radio Corporation of America, RCA Victor Tele. Div., Camden 8, N.J.
TUBES	TV... Eighteen VHF, Nineteen UHF-VHF Remote Control Receiver... Eight Remote Control Transmitter... Three Transistors
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATINGS TV 182 Watts, 1.6 Amp. @ 117 Volts AC 230 Watts, 2.1 Amp. @ 117 Volts AC (With Remote) 275 Watts, 2.52 Amp. @ 117 Volts AC (Tuning) Remote Receiver 48 Watts, .47 Amp. @ 117 Volts AC Remote Transmitter 0.195 Amp. @ 9 Volts
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

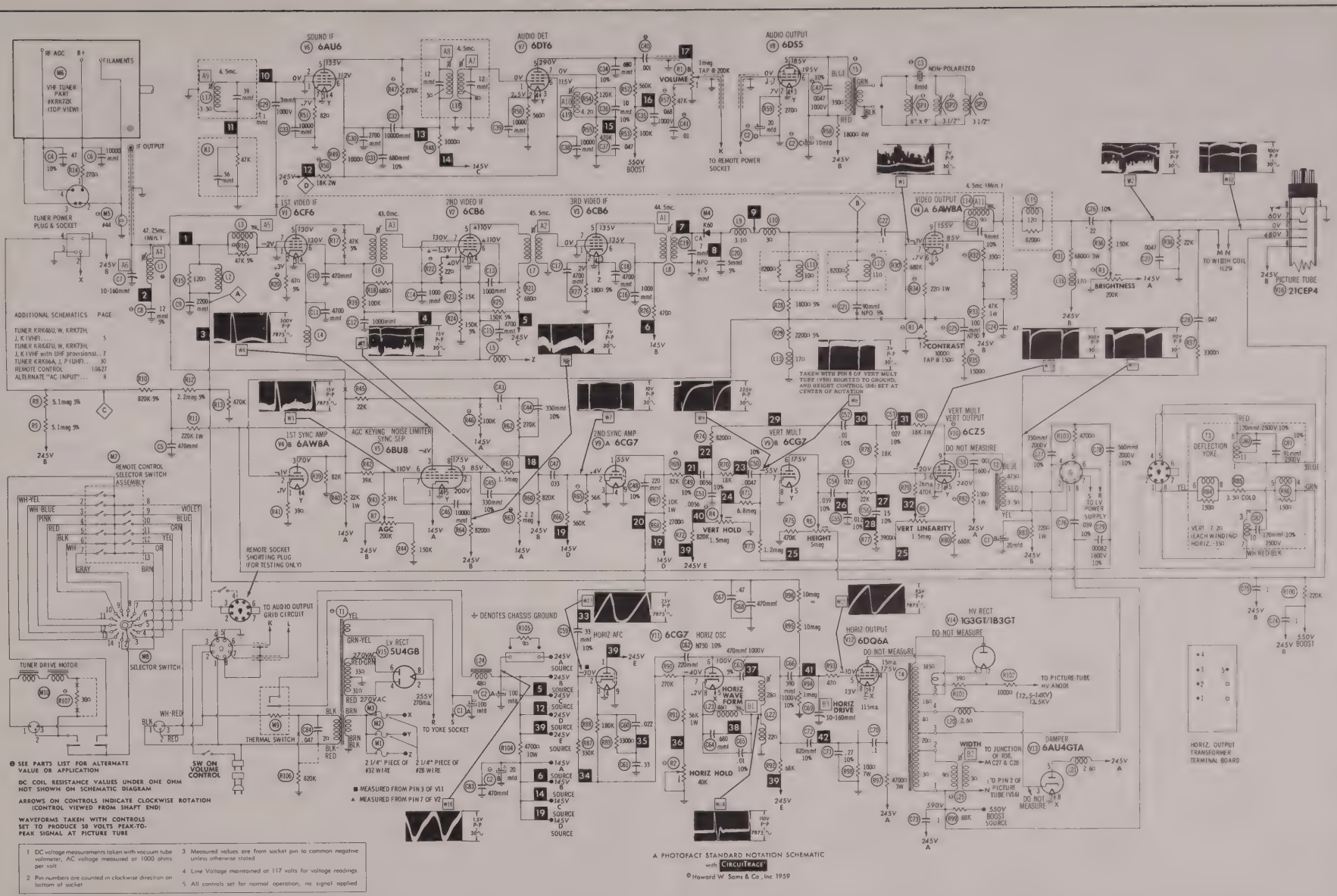
SERVICING IN THE FIELD LOCATED ON PAGE 13.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

H958

SET 428 FOLDER 1


SOUND IF V6 6AU6
AUDIO DET V7 6DT6
AUDIO OUTPUT V8 6DS5
1ST VIDEO IF V1 6CF6
2ND VIDEO IF V2 6CB6
3RD VIDEO IF V3 6CB6
VIDEO OUTPUT V4 6AW8A
1ST SYNC AMP V4 6AW8A
AGC KEYING NOISE LIMITER SYNC SEP V5 6BU8
2ND SYNC AMP V5 6CG7
VERT MULT V9 6CG7
VERT MULT VERT OUTPUT V10 6CZ5
HORIZ AFC V11 6CG7
HORIZ OSC
HORIZ OUTPUT V12 6DQ6A
HV RECT V14 1G3GT/1B3GT
LV RECT V15 5U4GB
DAMPER V13 6AU4GTA
VOLUME
BRIGHTNESS 200K
CONTRAST 1000Ω TAP @ 150Ω
AGC 200K
VERT HOLD 1.5meg
HEIGHT 5meg
VERT LINEARITY 1.5meg
HORIZ HOLD 40K
HORIZ DRIVE 10-160mh
WIDTH
HORIZ. WAVE FORM
TUNER POWER PLUG & SOCKET
VHF TUNER PART #KRK72K (TOP VIEW)
RF AGC
B+
FILAMENTS
IF OUTPUT
TO REMOTE POWER SOCKET
TO WIDTH COIL L29
PICTURE TUBE V16 21CEP4
TO PICTURE TUBE HV ANODE
DEFLECTION YOKE
TO L.V. POWER SUPPLY
REMOTE CONTROL SELECTOR SWITCH ASSEMBLY
REMOTE SOCKET SHORTING PLUG (FOR TESTING ONLY)
TO AUDIO OUTPUT GRID CIRCUIT
SELECTOR SWITCH
TUNER DRIVE MOTOR
THERMAL SWITCH
SW ON VOLUME CONTROL
TO YOKE SOCKET
HORIZ. OUTPUT TRANSFORMER TERMINAL BOARD
DENOTES CHASSIS GROUND
ADDITIONAL SCHEMATICS PAGE
TUNER KRK68U, W, KRK72H, J, K (VHF)..... 5
TUNER KRK82U, W, KRK73H, J, K (VHF with UHF provisions).. 7
TUNER KRK66A, J, P (UHF)... 30
REMOTE CONTROL 10627
ALTERNATE "AC INPUT"... 8
TAKEN WITH PIN 6 OF VERT MULT TUBE (V9B) SHORTED TO GROUND, AND HEIGHT CONTROL (R81) SET AT CENTER OF ROTATION
DO NOT MEASURE
2 1/4" PIECE OF #32 WIRE
2 1/4" PIECE OF #28 WIRE
MEASURED FROM PIN 3 OF V11
MEASURED FROM PIN 7 OF V2
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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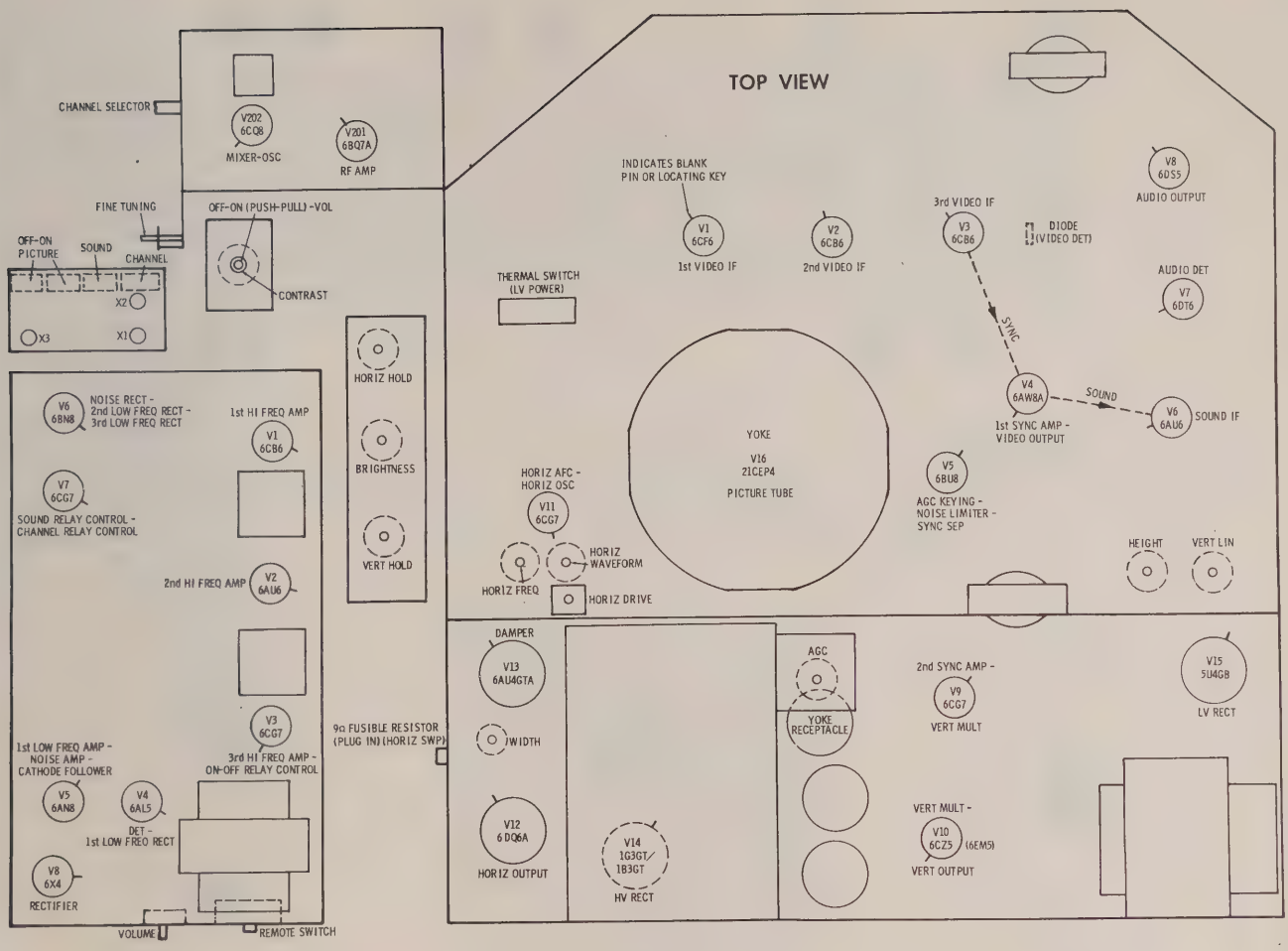
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Thermal Switch, Fuse Wire (F1), V15

SWEEP FAILURE
No raster, has sound V11, V12, V13, Fusible Resistor (9Ω), V14, V16
No vertical deflection V9, V10
Poor vert. linearity or foldover V9, V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, V15
Vert. off freq. V9, V10
Horiz. off freq. V11

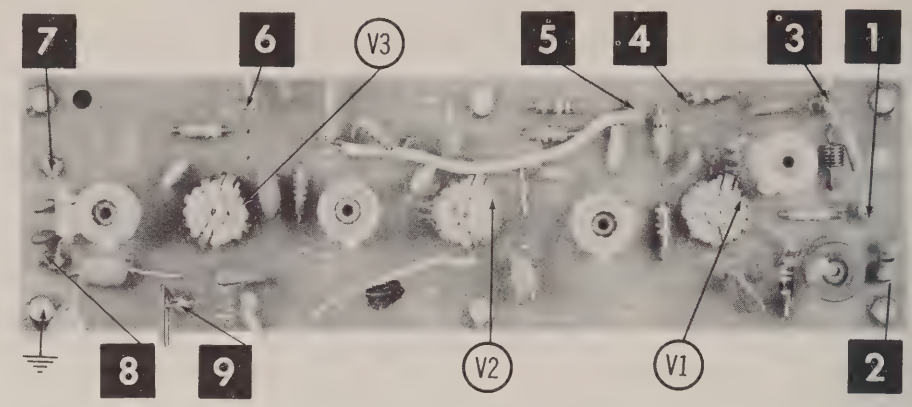
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V16
Has pic, no sound V6, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V4, V5, V9
No horiz. sync V4, V5, V9, V11
No vert. or horiz. sync V4, V5, V9

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A

FOLDER 1

CircuiTrace Numbers 1 thru 9

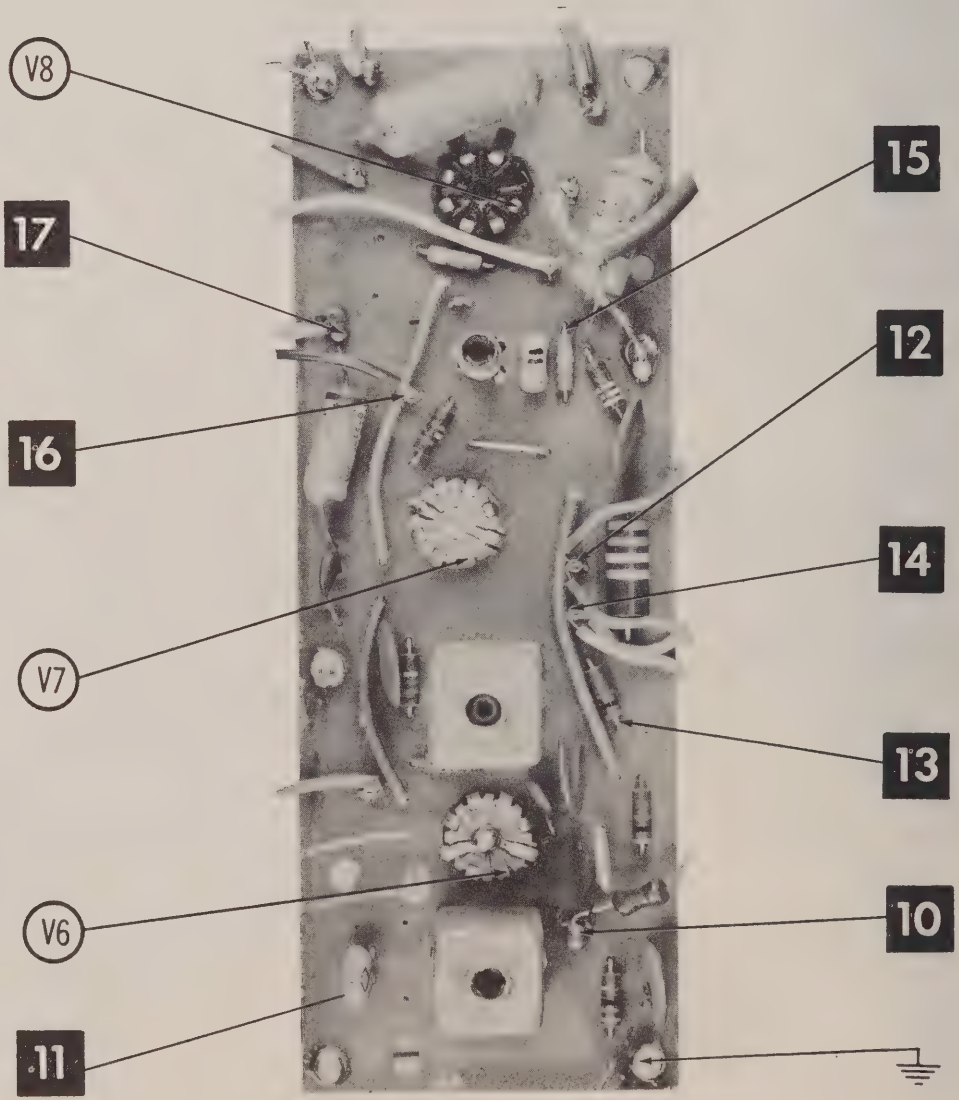


A Howard W. Sams CIRCUITRACE* Photo

VIDEO IF
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

CircuiTrace Numbers 10 thru 17



A Howard W. Sams CIRCUITRACE* Photo

SOUND
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER KRK46U, W, KRK72H, J, K

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: A201 thru A212, A213 thru A216 .... General Cement #5009, 8195, 8274, 8275, 8728, 8987
Walsco #2531
A217 thru A221 ..... General Cement #5000, 5003, 5009, 8290
Walsco #2520, 2523, 2525, 2537

TUNER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (T) . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Unplug IF output cable from the tuner and connect a 39Ω resistor in series with a .001mfd capacitor across IF output socket in tuner.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Fig. 201	Across antenna terminals thru pad (Fig. 201).	Not used	257MC	13	Vert. Amp. thru diode probe to point (U) . Low side to chassis.	A201	Adjust for zero beat on scope.
2.	"	"	"	251MC	12	"	A202	"
3.	"	"	"	245MC	11	"	A203	"
4.	"	"	"	239MC	10	"	A204	"
5.	"	"	"	233MC	9	"	A205	"
6.	"	"	"	227MC	8	"	A206	"
7.	"	"	"	221MC	7	"	A207	"
8.	"	"	"	129MC	6	"	A208	"
9.	"	"	"	123MC	5	"	A209	"
10.	"	"	"	113MC	4	"	A210	"
11.	"	"	"	107MC	3	"	A211	"
12.	"	"	"	101MC	2	"	A212	"
13.	"	"	183MC	181.25MC 185.75MC	8	"	A213, A214, A215, A216	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust A213 for marker position, A214 for proper bandwidth, A215 for proper tilt, and A216 for maximum gain.
14.	"	"	213MC	211.25MC 215.75MC	13	"	A217, A218	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust A217 for proper marker positions, A218 for proper tilt and retouch A214 for proper bandwidth.
15.	Repeat steps 13 and 14 for proper tracking and response on all channels from 13 to 7. Repeat step 1. Turn off generators and measure oscillator injection voltage at point (U) with VTVM. The reading obtained should be between -2.5 to -5.5 volts. If outside these limits replace V202 and repeat steps 1 thru 14.							
16.	Repeat step 8.							
17.	Fig. 201	Across antenna terminals thru pad (Fig. 201)	85MC	83.25MC 87.75MC	6	Vert. Amp. thru demodulator probe to point (U) . Low side to chassis.	A219, A220, A221	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown . Adjust A219 for maximum gain, A220 for proper marker positions and A221 for proper tilt.
18.	"	"	79MC	77.25MC 81.75MC	5	"	A222, A223, A224	If necessary, adjust appropriate coil for response similar to Fig. 202.
19.	"	"	69MC	67.25MC 71.75MC	4	"	A225, A226, A227	"
20.	"	"	63MC	61.25MC 65.75MC	3	"	A228, A229, A230	"
21.	"	"	57MC	55.25MC 59.75MC	2	"	A231, A232, A233	"

CONTINUED PAGE 31

VHF TUNER WITH UHF PROVISIONS KRK47U, W, KRK73H, J, K

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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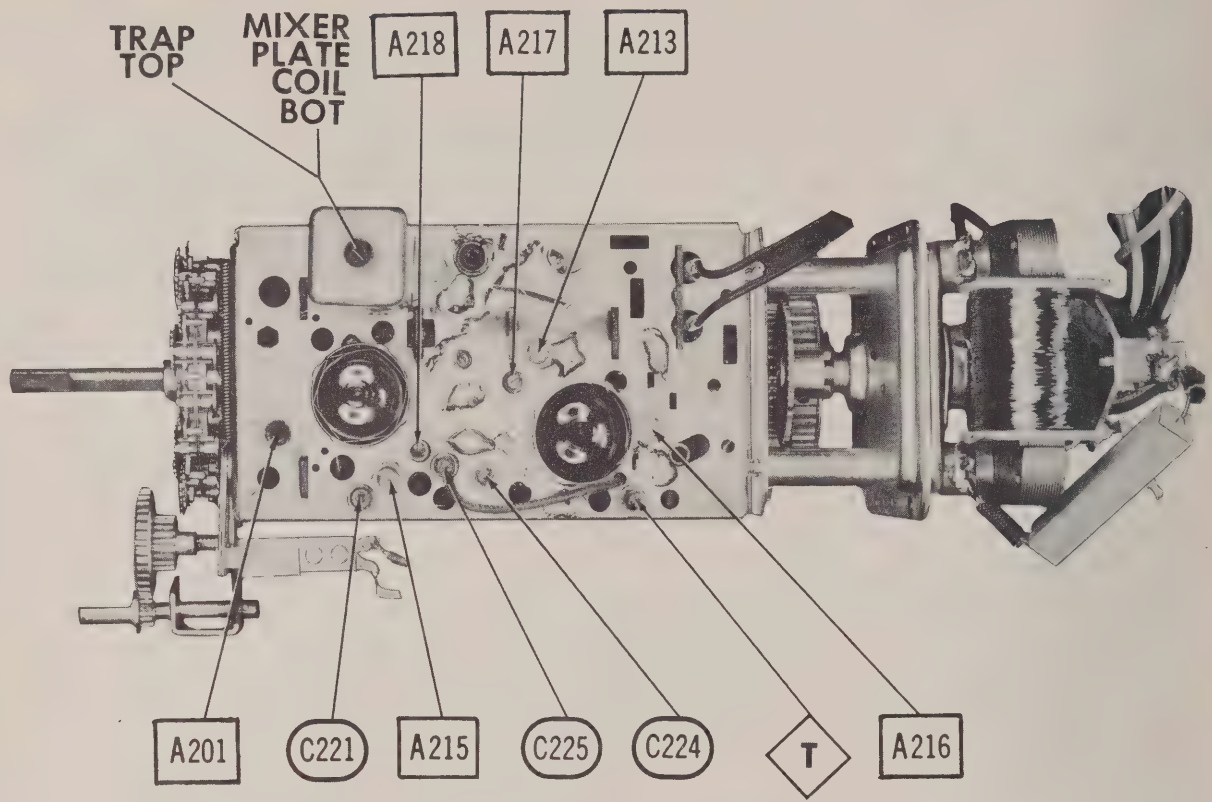
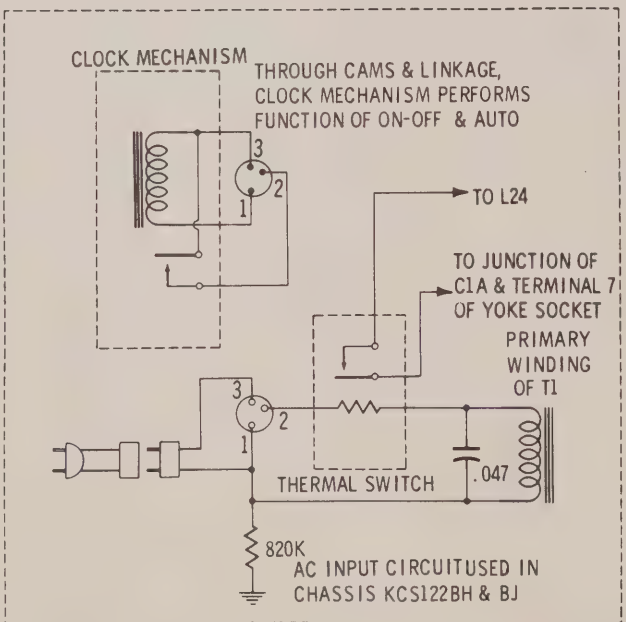
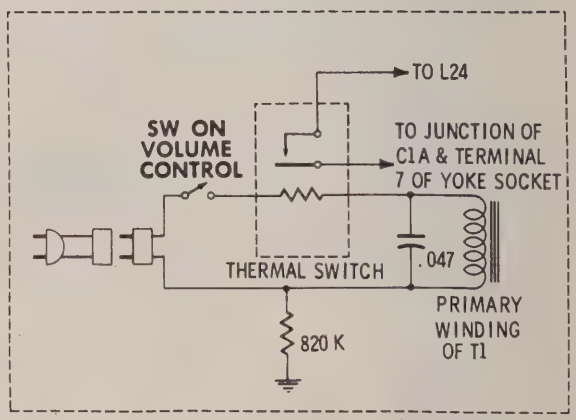


TUNER KRK72K - TOP VIEW





AC INPUT CIRCUIT USED IN CHASSIS KCS122BA, BB, BC, BD, BE, BF, BK, BL, BM, BN, BP, BR, BW, BAD, BAE, BAF & BAH

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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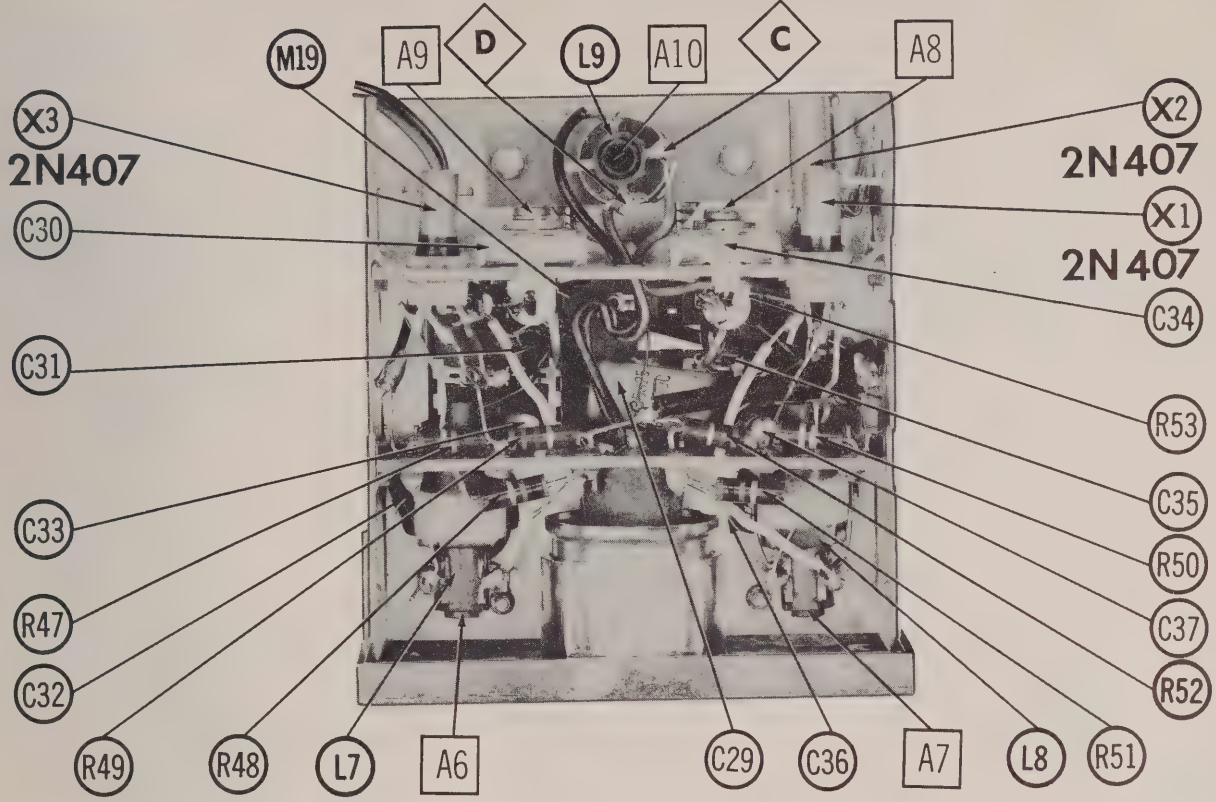
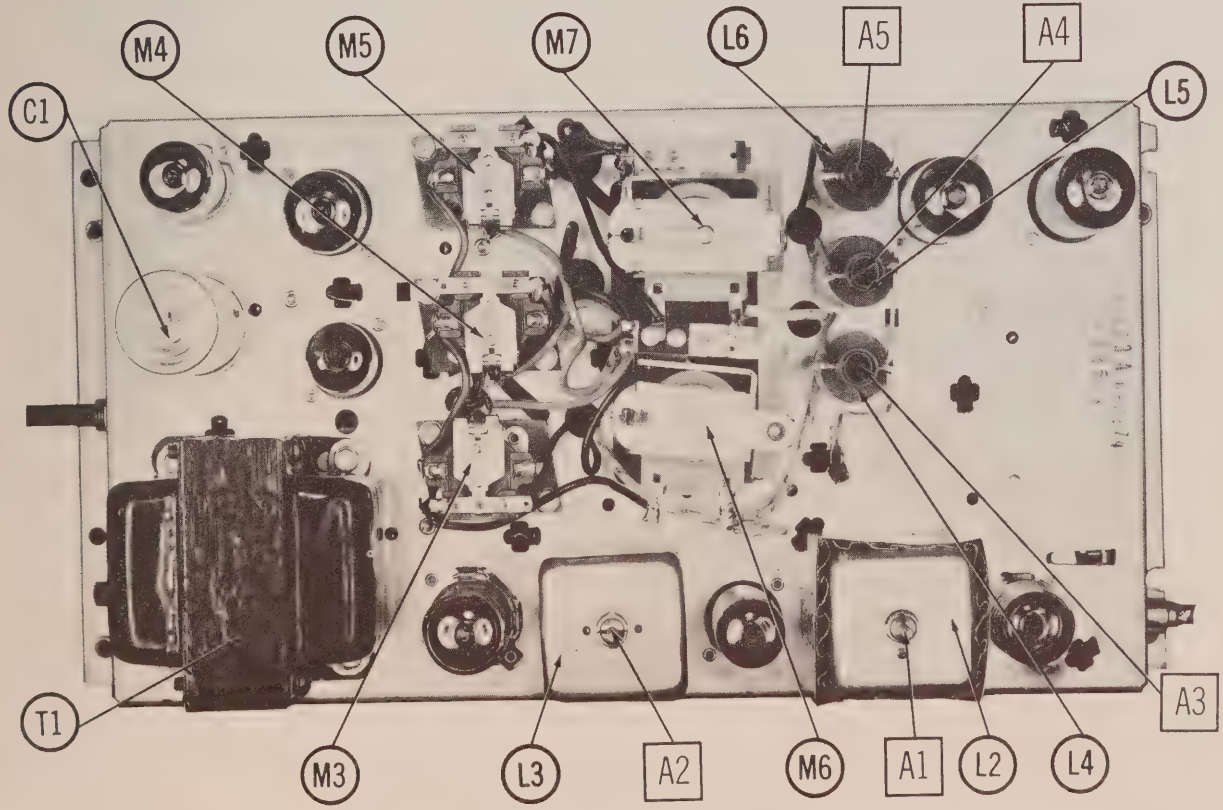
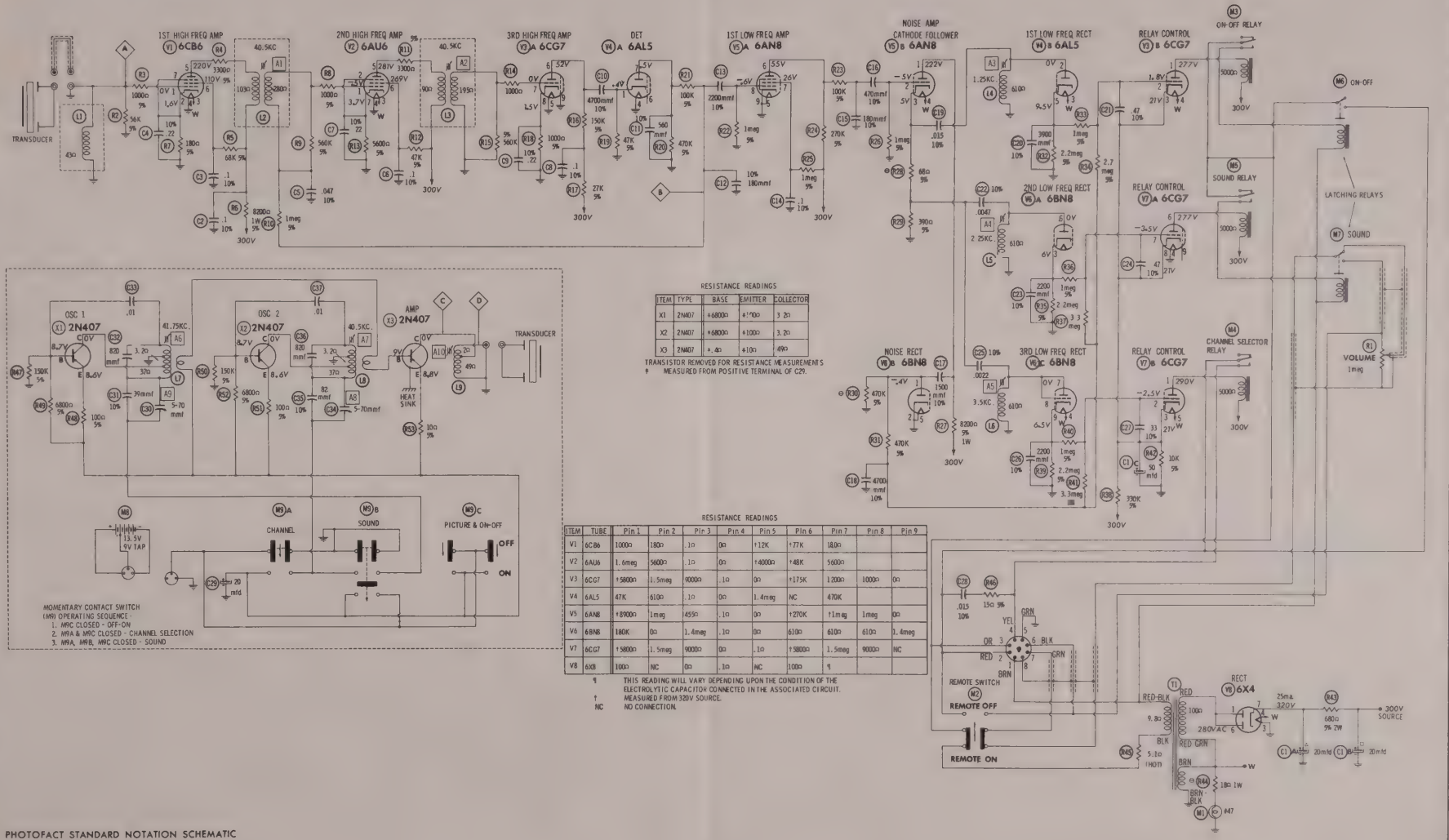
ALTERNATE AC INPUT CIRCUITS



REMOTE TRANSMITTER Ch. KRK84A



REMOTE RECEIVER Ch. KRK83A - TOP VIEW



RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N407	+6800Ω	+1700Ω	3.2Ω
X2	2N407	+6800Ω	+100Ω	3.2Ω
X3	2N407	+.4Ω	+10Ω	49Ω

TRANSISTOR REMOVED FOR RESISTANCE MEASUREMENTS
† MEASURED FROM POSITIVE TERMINAL OF C29.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	1000Ω	180Ω	.1Ω	0Ω	†12K	†77K	18Ω		
V2	6AU6	1.6meg	5600Ω	.1Ω	0Ω	†4000Ω	†48K	5600Ω		
V3	6CG7	†5800Ω	1.5meg	9000Ω	.1Ω	0Ω	†175K	1200Ω	1000Ω	0Ω
V4	6AL5	47K	610Ω	.1Ω	0Ω	1.4meg	NC	470K		
V5	6AN8	†89000Ω	1meg	455Ω	.1Ω	0Ω	†270K	†1meg	1meg	0Ω
V6	6BN8	180K	0Ω	1.4meg	.1Ω	0Ω	610Ω	610Ω	610Ω	1.4meg
V7	6CG7	†5800Ω	1.5meg	9000Ω	0Ω	.1Ω	†5800Ω	1.5meg	9000Ω	NC
V8	6X8	100Ω	NC	0Ω	.1Ω	NC	100Ω	¶		

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM 320V SOURCE.
NC NO CONNECTION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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REMOTE CONTROL RECEIVER KRK83A, AND TRANSMITTER KRK84A

REMOTE CONTROL
ALIGNMENT INSTRUCTIONS

REMOTE CONTROL RECEIVER ALIGNMENT

A transmitter which has been checked for frequency accuracy may be substituted for the Signal Generator.
Preset A1 and A2 so that the cores are at approximately the center of the coils.
Suggested alignment tools:
A1, A2 ..... General Cement #8721, 8722
Walsco #2519
A3, A4, A5 ..... General Cement #8607, 9291
Walsco #2520, 2522, 2523, 2524, 2537
A6, A7, A10 ..... General Cement #9440
A8, A9 ..... General Cement #5000, 5003, 5014, 5015, 5016, 8276, 8290
Walsco #2512, 2515, 2522, 2523, 2525, 2537

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	1500mmf Ceramic Capacitor	High side to point (A). Low side to chassis.	40.5KC (Unmod)		DC probe to point (B). Common to chassis.	A1, A2	Adjust for maximum deflection. Use only enough generator output to provide a usable indication on VTVM.
14.	"	"	1.25KC		DC probe to pin 5 (cathode) of 6AL5 (1st. LF Rect.). Common to chassis.	A3	"
15.	"	"	2.25KC		DC probe to pin 3 (cathode) of 6BN8 (2nd. LF Rect.). Common to chassis.	A4	"
16.	"	"	3.5KC		DC probe to pin 9 (cathode) of 6BN8 (3rd. LF Rect.). Common to chassis.	A5	"

REMOTE CONTROL TRANSMITTER ALIGNMENT

A separate transmitter which has been checked for frequency accuracy may be substituted for the Signal Generator.
Remove the 40.5KC Oscillator transistor.
The bottom shield and front bezel must be in place during alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	1500mmf Ceramic Capacitor	High side to Vert. Amp. of scope. Low side to scope.	41.75KC (Unmod) (Depress "On-Off" button)		Vert. Amp. thru 10mmf to point (C). Low side to chassis.	A6	Adjust for zero beat on scope.
18.	"	"	40.5KC (Depress "Sound" button)		"	A7	Adjust for zero beat on scope. Replace the 40.5KC transistor in transmitter. Remove 41.75KC Oscillator transistor.
19.	"	"	40.5KC (Depress "On-Off" button)		"	A8	Adjust for zero beat on scope.
20.	"	"	38.25KC (Depress "Sound" button"		"	A9	Adjust for zero beat on scope. Replace 41.75KC transistor.
21.		Disconnect signal generator.	Depress "Channel" button		Vert. Amp. thru 10mmf to point (D). Low side to chassis.	A10	Adjust for maximum amplitude consistent with maximum modulation percentage. (See Fig. 1)

FIG. 1

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A

FOLDER 1

REMOTE CONTROL PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st Hi Freq. Amp.	6CB6	
V2	2nd Hi Freq. Amp.	6AU6	
V3	3rd Hi Freq. Amp. - On-Off Relay Control	6CG7	
V4	Det. - 1st Low Freq. Rect.	6AL5	
V5	1st Low Freq. Amp. - Noise Amp. -Cathode Follower	6AN8	

ITEM No.	USE	TYPE	NOTES
V6	Noise Rectifier - 2nd Low Freq. Rectifier - 3rd Low Freq. Rectifier	6BN8	
V7	Sound Relay Control - Channel Relay Control	6CG7	
V8	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲20	350	106745	AFH3-127-10	C0800	FP227	TMD-35	D-160	TVLS-3635.2*
B	■20	350				TC29	TD-50-25	MT-0250	
C	50	25							

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.1	400	106110					5BF-P10	10%
C3	.1	400	106110					5BF-P10	10%
C4	.22	200	106354				GEM-2022	2WF-P22	10%
C5	.047	200	106107					2WF-S47	10%
C6	.1	400	106110					5BF-P10	10%
C7	.22	200	106354				GEM-2022	2WF-P22	10%
C8	.1	400	106110					5BF-P10	10%
C9	.22	200	106354				GEM-2022	2WF-P22	10%
C10	4700		106547	DI 4700		1R5D47	JL-247	MS-247	10%
C11	560		105248	DI 560	MD-561	1R5T56	JL-356	MS-356	10%
C12	180		102562	DI 180	DD-181	L10T18		MS-318	10%
C13	2200		104899	DI 2200		1R5D22	JL-222	MS-222	10%
C14	.1	400	106110					5BF-P10	10%
C15	180		102562	DI 180	DD-181	L10T18		MS-318	10%
C16	470		102230	DI 470	MD-471	5R5T47	JL-347	MS-347	10%
C17	1500		104890	DI 1500		1R5D15	JL-215	MS-215	10%
C18	4700		106547	DI 4700		1R5D47	JL-247	MS-247	10%
C19	.015	200	106548					2WF-S15	10%
C20	3900			1469-0039		1R5D39	JL-239	MS-239	10%
C21	.47	200	106107				GEM-2047	2WF-P47	10%
C22	.0047	600	106549					6TM-D47S 10% *	10%
C23	2200			DI 2200		1R5D22	JL-222	MS-222	10%
C24	.47	200					GEM-2047	2WF-P47	10%
C25	.0022	600	106550					6TM-D22S 10% *	10%
C26	2200			DI 2200		1R5D22	JL-222	MS-222	10%
C27	.33	200					GEM-2033	2WF-P33	10%
C28	.015	600	73797					6TM-S15S 10% *	10%

* Not normally in distributors stock. Available through distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	106744	AB-70	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			AK-19	RN-3	TQ	Not Req.	

RESISTORS

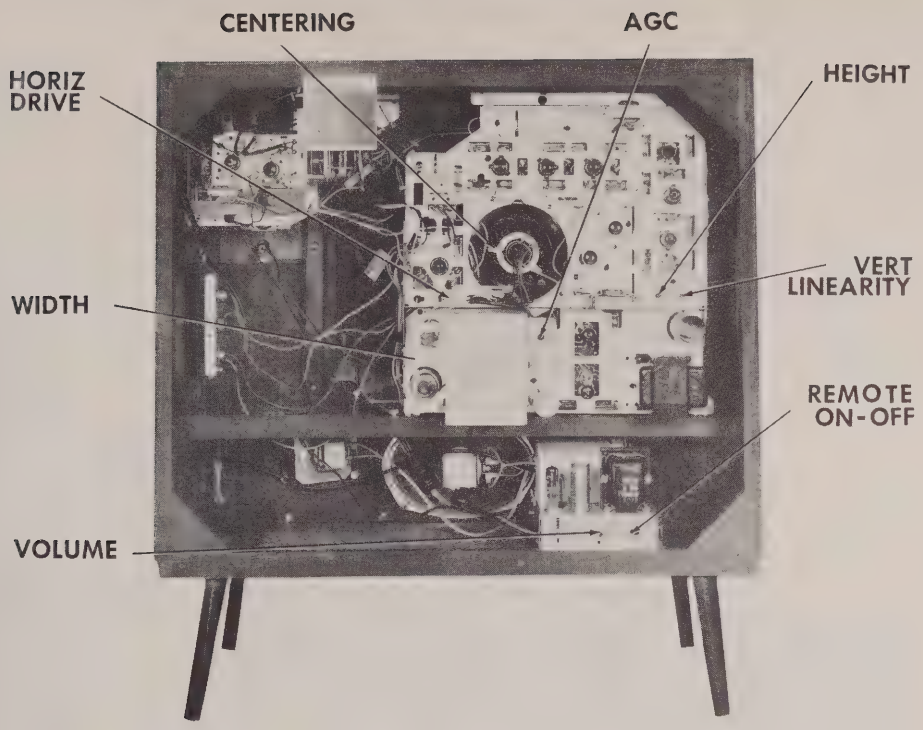
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R2	56K 5%			
R3	1000Ω 5%			
R4	3300Ω 5%			
R5	68K 5%			
R6	8200Ω 5%	1		
R7	180Ω 5%			
R8	1000Ω 5%			
R9	560K 5%			
R10	1meg 5%			
R11	3300Ω 5%			
R12	47K 5%			
R13	5600Ω 5%			
R14	1000Ω			
R15	560K 5%			
R16	150K 5%			
R17	27K 5%			
R18	1000Ω 5%			
R19	47K 5%			
R20	470K 5%			
R21	100K 5%			
R22	1meg 5%			
R23	100K 5%			
R24	270K 5%			

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R25	1meg 5%			
R26	1meg 5%			
R27	8200Ω 5%	1		
R28	220Ω 5%			Note 1
R29	390Ω 5%			
R30	180K 5%			Note 2
R31	470K 5%			
R32	2.2meg 5%			
R33	1meg 5%			
R34	2.2meg 5%			
R35	2.2meg 5%			
R36	1meg 5%			
R37	3.3meg			
R38	330K 5%			
R39	2.2meg 5%			
R40	1meg 5%			
R41	3.3meg 5%			
R42	10K 5%			
R43	680Ω 5%	2		
R44	18Ω	1		Note 3
R45	5.1Ω Hot		106637	
R46	15Ω 5%			

Note 1. Some versions may use 68Ω in this application.
Note 2. Some versions may use 470K in this application.
Note 3. Some versions may use 33Ω 1W in this application.

CONTINUED PAGE 25



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Before adjusting the Waveform slug (B1), the Horizontal Drive and Width must be properly adjusted.

Set the Horizontal Hold to the pull-in point. Turn the Width slug (B2) fully counterclockwise and turn Horizontal Drive trimmer (B3) counterclockwise until a bright vertical line appears near the center of the raster, then turn clockwise until the line just disappears. If no line appears near the center of the raster, then turn clockwise until the line just disappears. If no line appears, leave B3 fully counterclockwise.

With the Brightness set to normal level, adjust the Width slug (B2) for an overscan of approximately 3/4 inch on each side of the screen at normal line voltage.

Connect a short jumper across the terminals of the Horizontal Waveform coil (L23) and short the grid (pin 2) of the 6CG7 (V11) to chassis with a small screwdriver.

Adjust the Horizontal Hold for an upright picture (May appear to float back and forth across the screen). Remove the jumper from L23 and adjust B1 to again obtain a picture in an upright position. When B1 is properly adjusted, alternately shorting should not cause the picture to lose sync, But instead cause a slight sideways shift of the picture. Remove the short from the grid of the 6CG7.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Fine Tuning knobs. If Channel 13 is to be adjusted, the rear cover must be removed. Channel 13 adjustment is located on top of the tuner just in front of the Oscillator tube. Channel 12 thru 2 is accessible thru a hole in the front of the tuner one at a time as the Channel Selector is rotated. Adjust for best picture and sound.

SAFETY GLASS REMOVAL

Remove 6 wood screws holding metal trim at top of safety glass. Remove safety glass by tilting out at top and lifting up.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

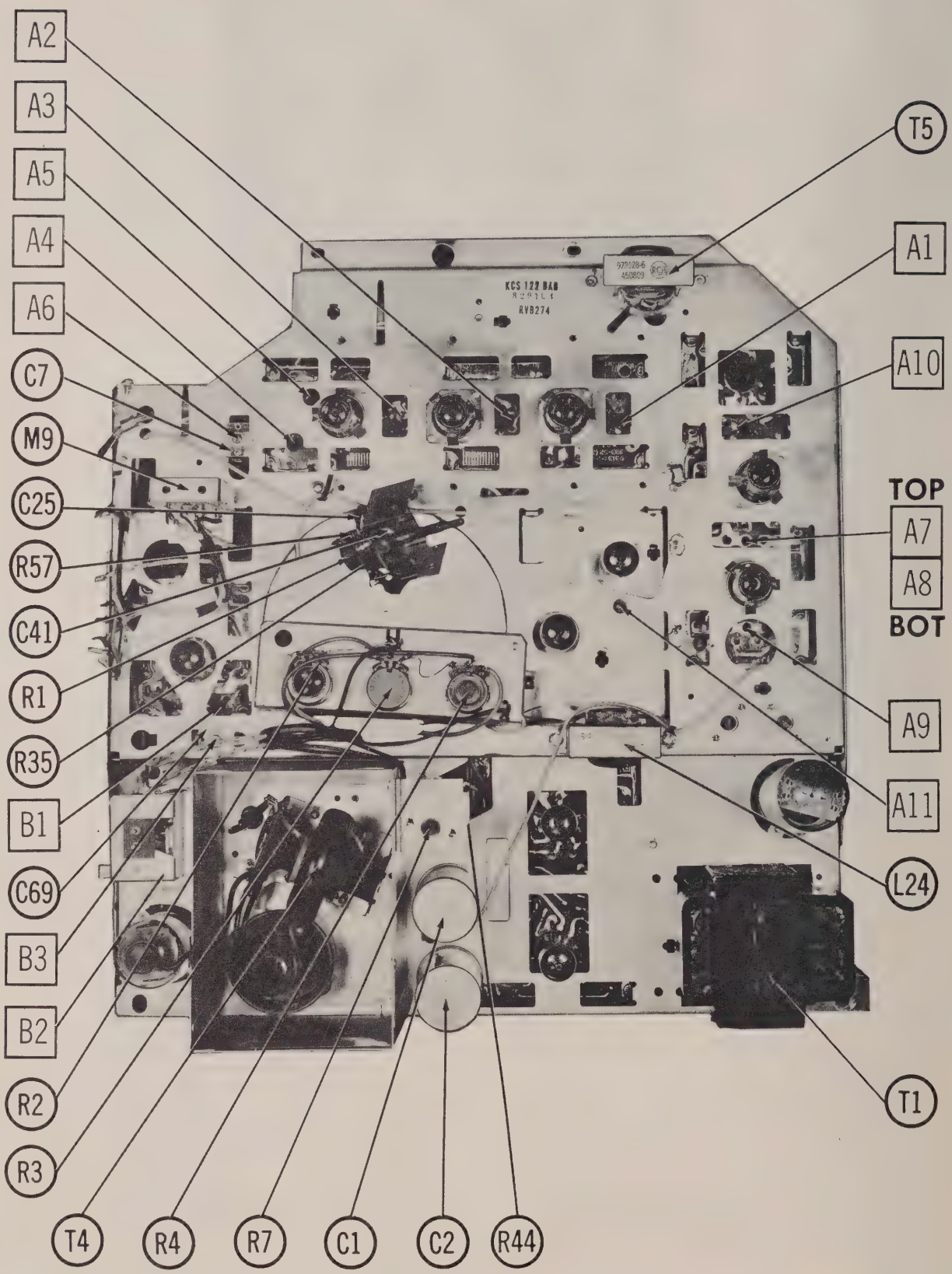
For adjustment of the Horizontal Oscillator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Waveform (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSE DEVICE

A thermal switch is used for LV power supply protection, 3 fuse wires for filament protection and a 9Ω fusible resistor (R105) for horizontal sweep circuit protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.



CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: A1 thru A10 ..... General Cement #8606, 8606L, 8282, 9295
Walsco #2526, 2543, 2544, 2545
All..... General Cement #8721, 8722
Walsco #2519

VIDEO IF ALIGNMENT

Connect the negative lead of a 6 volt bias supply to point Ⓐ . Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	1500mmf Ceramic Capacitor	High side to Mixer Grid wafer contact thru access hole (adjacent to Mixer Grid wafer) located in left side of tuner shield. Low side to chassis.	44.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓑ. Common to chassis. (Across Video Det. load)	A1	Adjust for maximum gain. Adjust generator output for 3 volt on meter when finally peaked.
2.	"	"	45.5MC	"	"	A2	"
3.	"	"	43.0MC	"	"	A3	"
4.	"	"	47.25MC	"	"	A4 & Mixer Plate Coil (Top Core)	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 4 volt bias supply to point Ⓐ and -3.0 volt to point Ⓒ . Positive to chassis.
Connect a 180Ω resistor from pin 5 (plate) to pin 6 (screen) of the 1st Video IF Amplifier, 6CF6, (V1).
Loosely couple signal generator to sweep output cable to provide markers.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1500mmf	High side to Mixer Grid wafer contact thru access hole (adjacent to Mixer Grid wafer) located on left side of tuner shield. Low side to chassis.	45MC (10MC Swp)	42.5MC 45.75MC 47.25MC	4	Vert. Amp. thru demodulator probe to pin 5 plate of 1st Video IF Amp. (V1). Low side to chassis.	A5, A6, Mixer Plate Coil (Bottom Core)	Use only enough sweep generator output to provide a usable pattern on scope. Calibrate scope for 0.5 volts peak to peak. Adjust Mixer Plate Coil and A5 for maximum gain, using A6 to obtain curve shape with markers as shown in Fig. 1. Remove 180Ω resistor from V1.
6.	"	"	"	42.5MC 45.0MC 45.75MC 47.25MC	"	Vert. Amp. thru 10K to point Ⓑ . Low side to chassis. (Across Video Det. load)	A1, A2, A3	Calibrate scope for 5 volts peak to peak. Check for response similar to Fig. 2 . If necessary, retouch A1, A2 and A3 for desired response.
7.	Fig. 3	High side thru pad (Fig. 3) to Mixer Grid wafer contact thru access hole (adjacent to Mixer Grid wafer) located in left side of tuner shield. Low side to chassis.	Not used	45.75MC	"	USE VTVM DC probe to point Ⓑ. Common to chassis.		Adjust generator output to provide exactly 1.5 volts on VTVM.
8.	1500mmf	Remove pad and connect as in step 5.	45MC (10MC Swp)	41.25MC	"	USE VTVM DC probe to point Ⓑ. Common to chassis. Connect scope as in step 6.	A1, A3	Retouch for 1.0 to 1.5 volts on VTVM while maintaining response similar to Fig. 2.
9.	Fig. 4	Across antenna terminals thru matching network (Fig. 4).	Each VHF Channel in turn	42.5MC 45.75MC 47.25MC	All VHF Channels	Vert. Amp. thru 10K to point Ⓑ . Low side to chassis.	A1, A2	Retouch A1 and A2 SLIGHTLY to correct for tilt or other condition that is approximately the same on all channels.

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point Ⓐ . Positive to chassis.
Set Contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001mfd	High side to point Ⓑ . Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru diode probe (Fig. 5) to pin 7 (grid 3) of 6DT6 (V7). Common to chassis.	A7, A8, A9	Adjust for maximum negative voltage. Attenuate generator for a reading between 1.0 to 1.5 volts on meter when finally peaked. Peak A7 and A8 with maximum core separation. Adjust A9 for maximum.
11.	Remove VTVM and diode probe. Connect scope across speaker voice coil. Turn off signal generator and tune in the strongest signal in the area. Adjust Volume control for normal volume. Preset coil slug (A10) flush with top of coil form. While observing scope and listening to sound, adjust A10 clockwise to a peak. Continue turning clockwise for second loudèr peak and adjust for maximum on this second peak.						

CONTINUED PAGE 16

ALIGNMENT INSTRUCTIONS (cont)

ALTERNATE SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR

Connect the negative lead of a 10 volt bias supply to point (A). Positive to chassis.
Set Contrast control fully clockwise.
Set VTVM for negative voltage readings.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001mfd	High side to point (B). Low side to chassis.	4.5MC (400∿ FM Mod. 15KC Swp)	Any non-interfering channel	DC probe thru diode probe (Fig. 5) to pin 7 (grid 3) of 6DT6 (V7). Common to chassis.	A7, A8, A9	Adjust for maximum negative voltage. Attenuate generator output for a reading 1.0 to 1.5 volts on meter when finally peaked. Peak A7 and A8 with maximum core separation. Adjust A9 for maximum.
11.	"	"	"	"	USE SCOPE Connect across speaker voice coil	A10	Adjust for maximum 400∿ indication on scope. Adjust volume control for 0.7 volt peak to peak on scope when peaked.
12.	"	"	"	"	"		Decrease input signal to MINIMUM usable level and retouch A7, A8 and A9 for symmetrical breakout similar to Fig. 6.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	.001mfd	High side to point (B). Low side to chassis.	4.5MC (400∿ Mod)	Any non-interfering channel	Vert. Amp. thru 1meg to pin 7 (cathode) of picture tube. Low side to chassis.	All	Adjust for MINIMUM 400∿ on scope.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6 & 31
REMOTE CONTROL ALIGNMENT LOCATED ON PAGE 11

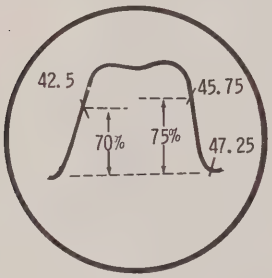


FIG.1

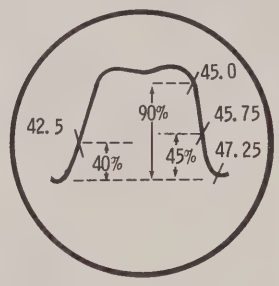


FIG.2

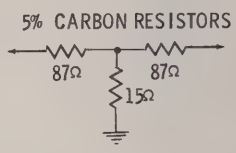


FIG.3

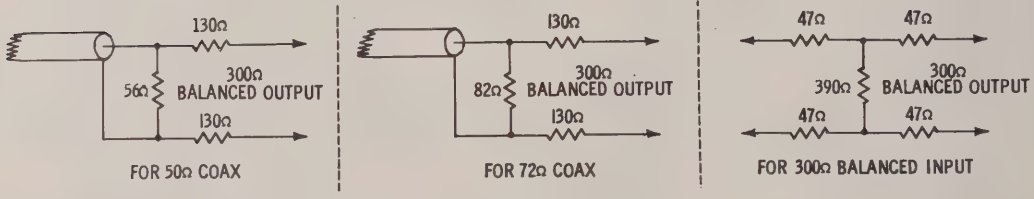


FIG.4

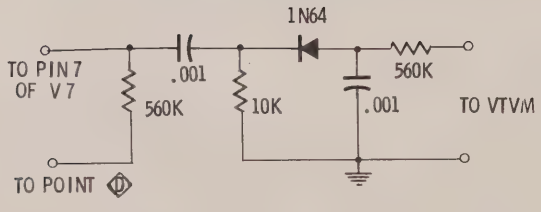


FIG.5

FIG.6

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st Video IF Amp.	6CF6	
V2	2nd. Video IF Amp.	6CB6	
V3	3rd Video IF Amp.	6CB6	
V4	1st Sync Amp. - Video Output	6AW8A	
V5	AGC Keying - Noise Limiter - Sync Sep.	6BU8	
V6	Sound IF Amp.	6AU6	
V7	Audio Det.	6DT6	
V8	Audio Output	6DS5	
V9	2nd Sync Amp. - Vert. Mult	6CG7	
V10	Vert. Mult. - Vert. Output	6CZ5	6EM5 *
V11	Horiz. AFC - Horiz. Osc.	6CG7	
V12	Horiz. Output	6DQ6A	
V13	Damper	6AU4GTA	
V14	HV Rectifier	1G3GT/1B3GT	
V15	LV Rectifier	5U4GB	

* Alternate.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	RCA Victor PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V16	21CEP4		21CEP4 ①	21CEP4 ②	① "Silverama" ® ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▰100	400	104091	AFH2-100-50	B0726	FP256	TMD-58	D-198	TVL-2813
B	▲20	400							
C2A	▰100	400	①	AFH4-103-40	D0805	FP389.1		Q-248	TVLS-4666. 2*
B	▲20	350				TT50X20			
C	■10	400							
D	20	50							
C3	8	10NP	102487 ②	AC-PRS10V8	BBR16-90 † BBR16-90	TC108	TD-16-150 † TD-16-150	MT-1516 † MT-1516	TVAS-1112*

* Not normally in distributors stock. Available through distributor on order to manufacturer.
† Connect negative leads together.
① Some versions may use a 100-10-20-20 ⓐ 50-50-100-250 (Part #102411).
② Not used in models with single speaker.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.47	200	79148A	P288N-47		CUB2P47	GEM-2047	2TM-P47	10%
C5	470		106546	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C6	10000		73960	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	10-160		100849						
C8	12		106230		TCZ-12		CNO-412	5TCC-Q12S 5% *	5% ①
C9	2200		104899	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C10	470		78622	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C11	4700		73473	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C12	1000		77252	BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C13	1000		102234A	BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C14	1000		77252	BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C15	4700		73473	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C16	1000		102234A	BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C17	4700		73473	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C18	4700		73473	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C19	7.0		104177					5TCCB-V7S ±.5mmf *	NPO ±.5mmf
C20	5.0		104178	NPO-SI 5				5TCCB-V5S 5% *	5%
C21	90				TCZ-91			5TCC-Q90S 5% *	NPO 5% ②
C22	.1	200	106374	P288N-1		CUB2P1	GEM-201	2TM-P1	
C23	9.0		77108					5TCCB-V9S 10% *	10%
C24	.47	200	106111	P288N-47		CUB2P47	GEM-2047	2TM-P47	
C25	100			N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	N750 ②
C26	.22	600	106818				GEM-6022	6TM-P22 S 10% *	10%
C27	.0047	400	73920	P488N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	
C28	.047	400	73553	P488N-047		CUB4S47	GEM-4147	4TM-S47	
C29	3.0	1000	102415						±.1mmf
C30	2700		104131					5GA-T27S 10% *	10%
C31	680		104135	DI-680	DD-681		JL-368	5GA-T68S 10% *	10%
C32	10000		73960	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C33	10000		73960	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C34	680		104135	DI-680	DD-681		JL-368	5GA-T68S 10%*	10%
C35	.068	1000	73815	P1088N-068		CUB10S68	GEM-10168	10TM-S68	
C36	10		105658	NPO-SI 10	TCZ-10	CTA6Q1C	CNO-410	5TCC-Q1	10%
C37	.047	200	105775	P288N-047		CUB4S47	GEM-4147	4TM-S47	
C38	10000		73960	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C39	10000		73960	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C40	.001	600	104323	P688N-001		CUB6D1	GEM-621	6TM-D1	③
C41	.01	200	1011000A	P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	②
C42	.0047	1000	73805					10TM-D47S 10% *	10% ④
C43	.1	400	106110	P488N-1		CUB4P1	GEM-401	4TM-P1	
C44	330		105301	BPD-00033	MD-331	L10T33		5GA-T33S 10% *	10%
C45	330		105301	BPD-00033	MD-331	L10T33		5GA-T33S 10% *	10%
C46	10000		73960	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C47	.033	400	105318	P488N-033		CUB6S33	GEM-4133	6TM-S33	
C48	220		104144	1469-00022	D6-221	22R5T22		MS-322	10%
C49	.0056	600	104906					6TM-D56S 10% *	10%
C50	.0047	600	73920					6TM-D47S 10% *	10%
C51	.0056	400	73788					5BF-D56	10%
C52	.01	200	79316					2WF-S10	10%
C53	.027	600	75345					6TM-S27S 10% *	10%
C54	.039	400	73790					5BF-S39	10%
C55	.012	400	79781					5BF-S12	10%
C56	.15	200	104146				GEM-2015	2WF-P15	10%
C57	.022	600	104145	P688N-022		CUB6S22	GEM-6122	6TM-S22	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RCA Victor PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL-DUBILIER PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C58	001	1600	73849	P168SN-001		CUB16D1	GEM-1621	MB-D1	
C59	33		105348			C10Q33U	CNO-433	5GA-Q33S 10% *	10%
C60	022	200	105570	P288N-022		CUB22E2	GEM-4122	2TM-S22	
C61	33	200	105571	P288N-33			GEM-3033	4TM- P33S *	
C62	220		105245	N750-D1 220	TCN-220	C10T22U	CN7-322	5TCU-T22	N750 10% 5%
C63	470	1000	105572						
C64	680		105518	BPD-00068	DD-681	BYA10T68	B-368	5GA-T68	
C65	01	400	105576					4TM-S1	10%
C66	390	1000	105575		MD-391	L10T39		10GA-T39S 10% *	10%
C67	.47	200	73787	P288N-47		CUB2F47	GEM-2047	2TM-P47	
C68	470		77293	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C69	10-160		102412						
C70	.1	600	73557	P688N-1		CUB6P1	GEM-601	6TM-P1	
C71	.27	600	73786				GEM-6027	6TM-P27S 10% *	10%
C72	820		106080	1464-00082		1R5T82		M5-382	10%
C73	1	600	73557	P688N-1		CUB6P1	GEM-601	6TM-P1	
C74	.1	400	73551	P488N-1		CUB4P1	GEM-401	4TM-P1	
C75	.1	400	73551	P488N-1		CUB4P1	GEM-401	4TM-P1	
C76	.039	400	73790					4TM-S39S 10% *	10%
C77	330	2000	102177				JL-333	20HKD-T33S 10% *	10%
C78	560	2000	106307				JL-356	20HKD-T56S 10% *	10%
C79	00082	1500						20GA-T82S 10% *	10%
C80	120	2500	103536					30GA-T12S 10% *	10%
C81	91	2500	103535					30GA-Q91S 10% *	10%
C82	120	2500	103536					30GA-T12S 10% *	10%
C83	470		77293	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C84	.047	600	73592	P688N-047		CUB6S47	GEM-6147	6TM-S47	

* Not normally in distributors stock. Available through distributor on order to manufacturer.
① Some versions may use 18mmf in this application.
② Not used in some versions.
③ Ch. KCS22BA, BB may use .022mfd in this application.
④ Ch. KCS22BA, BB may use .0033mfd in this application.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	RCA Victor PART No	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3000Ω	½	106222	F1-16	RTV-674			Contrast, Tap ② 150Ω, Note 1
B	1meg	½		R2-57	Not Req.	† QJ987	††	Volume, Tap ② 200K
C	Switch			KB-1 or KR-1*	Not Req.			
R2	40K	½	106227					Horiz. Hold, Note 2
R3A	200K	½	104088	B-46	A47-200K-S	QU-129	U43	Brightness, Note 3
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	1.5meg	½	104089	B-742	A47-1.5meg-S	QU-152	U55	Vert. Hold, Note 4
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	1.5meg	½	102408		B47-1.5meg-S	BU-138	TA155L	Vert. Linearity
B	Shaft				Not Req.	TM-3	Not Req.	
R8A	5meg	½	100290	AB-87	A47-5meg-S	QU-141	SU87	Height
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R7A	200K	½	106756	AB-46	B47-200K-S	BU-129	U43	AGC
B	Shaft			AK-19	Not Req.	TM-3	Not Req.	

* Use KR with CRL "red label" controls, and KB with "blue label" controls.
† "Concentrikit" Equivalent : K-6 Kit, Base Elements B17-132X, Shaft P17-118 (Panel)
Base Elements B13-137X, Shaft R1-130 (Rear)
(Not available as a factory assembled unit.)
†† "ITA-LOC" Equivalent: FA337281, OP1375, RU16T25, 1L937, US-41.
Note 1. Alternate Part #106223 may be used in Ch. KCS22BE, BF.
Alternate Part #104922 may be used in Ch. KCS22BH, BJ.
Alternate Part #106221 may be used in Ch. KCS22BP, BR.
Alternate Part #106661 may be used in Ch. KCS22BA, BB.
Note 2. Alternate Part #105228 may be used in Ch. KCS22BC, BD, BP, BR, BW, BAA.
Alternate Part #106755 may be used in Ch. KCS22BAF, BAH.
Note 3. Alternate Part #105437 may be used in Ch. KCS22BAF, BAH.
Alternate Part #106225 may be used in Ch. KCS22BC, BD, BP, BR, BW, BAA.
Note 4. Alternate Part #105226 may be used in Ch. KCS22BC, BD, BP, BR, BW, BAA.
Alternate Part #106438 may be used in Ch. KCS22BAF, BAH.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R8	5.1meg 5%			
R9	5.1meg 5%			
R10	820K 5%			
R11	220K	1		
R12	2.2meg 5%			Note 2
R13	470K			Note 2
R14	270Ω			
R15	120Ω			
R16	47K 5%			Note 1
R17	47K 5%			Note 2
R18	680Ω			
R19	100K			
R20	470 5%			Note 3
R21	680Ω			
R22	22Ω			Note 2
R23	15K			
R24	150K 5%			Note 2
R25	150K 5%			
R26	470Ω			
R27	180Ω 5%			
R28	1800Ω 5%			
R29	2200Ω 5%			
R30	680K			Note 10
R31	6800Ω	3	105862	
R32	330Ω			Note 4
R33	47K	1		
R34	22Ω	1		Note 5
R35	1500Ω			Note 4
R36	150K			
R37	3300Ω			Note 8
R38	22K			
R39	82K			
R40	22K			

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R41	39Ω			
R42	39K			
R43	39K			
R44	150K			
R45	22K			
R46	100K			
R47	270K			
R48	1000Ω			
R49	1000Ω			
R50	18K	2	104834	
R51	62Ω			
R52	560K			
R53	100K			
R54	120K			
R55	470K			
R56	560Ω			
R57	47K			
R58	1600Ω	4	104834	
R59	270Ω			
R60	820K			
R61	1.5meg			
R62	270K			
R63	2.2meg			
R64	8200Ω			
R65	56K			
R66	560K			
R67	10K	1		
R68	2700Ω			
R69	82K			
R70	18K			
R71	6.8meg			
R72	820K			
R73	1.2meg			

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R74	8200Ω			
R75	470K			
R76	22K			
R77	3900Ω			
R78	18K			
R79	470K			
R80	680K			
R81	18K	1		
R82	1500	1		Note 9
R83	220Ω	1		
R84	150Ω			
R85	2.5Ω Cold			
R86	150Ω			
R87	330K			
R88	180K			
R89	3300Ω			
R90	270K			

Note 1. Some versions may use 33K 5% in this application.
Note 2. Not used in some versions.
Note 3. Some versions may use 68Ω 5% in this application.
Note 4. Some versions may use 820Ω in this application.
Note 5. Some versions may use 39Ω in this application.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R91	56K	1		
R92	68K			
R93	47Ω			
R94	1meg			
R95	10meg			
R96	10meg			
R97	4700Ω	3	104835	
R98	100Ω	7	104188	
R99	68K			
R100	220K			
R101	.39Ω		104181	
R102	1000Ω			
R103	4700Ω			
R104	4700Ω	10	106074	
R105	9Ω		104295	
R106	620K			
R107	30Ω			Note 2

Note 6. Some versions may use 15K 2W in this application.
Note 7. Some versions may use 33K in this application.
Note 8. Some versions may use 68K in this application.
Note 9. Some versions may use 2200Ω 1W in this application.
Note 10. Some versions may use 2.7meg in this application.

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	47.25MC Trap	104141					①
L2	RF Choke						
L3	1st Video IF	104140					
L4	Fil. Choke						
L5	Fil. Choke						
L6	2nd Video IF	104139					
L7	3rd Video IF	104139					
L8	4th Video IF	104139					
L9	RF Choke	102839	19-1006	TV-192	6152		18 Microhenries
L10	RF Choke	102839	19-1006	TV-192	6152		18 Microhenries
L11	Series Peaking Coil	106311	19-3250 *	TV-185 *	6181 *	VP-5 *	250 Microhenries, wound on 820Ω resistor
L12	Series Peaking Coil	106757	19-3250 *	TV-185 *	6181 *	VP-5 *	250 Microhenries, wound on 820Ω resistor ②
L13	Shunt Peaking Coil	100363	19-3500	TV-203	6174	VP-8	510 Microhenries
L14	4.5MC Trap	79157	17-3402 ▲		1470 ▲		
L15	Series Peaking Coil	106758	19-3300	TV-199	6155		300 Microhenries, wound on 820Ω resistor
L16	Shunt Peaking Coil	100363	19-3500	TV-203	6174	VP-8	510 Microhenries
L17	1st Sound IF	104136					Includes caps
L18	2nd Sound IF	104137					Includes caps
L19	Quadrature Coil	104138					4.7 Microhenries ③
L20	RF Choke	76510					4.7 Microhenries ③
L21	RF Choke	76510					4.7 Microhenries ③

① Ch. KCS22BA, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN use Part #106229. ② Not used in some versions.
③ IRC Part #CL-1 . * Parallel with 820Ω resistor. ▲ Disregard center tap.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L22	50Ω		105867						Horiz. Freq. tapped ② 22Ω
L23	48Ω		102195						Waveform Coil

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ~C.)	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L24	.270A	48Ω	.9 Hy.	100286					26C44 ①	C-34X

① Drill new mounting hole.

COILS (SWEEP CIRCUITS)

ITEM No.	USE	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L25	Width Coil	106638 ①								
A	Primary (1.7-11MH)									
B	Secondary (.05-.1MH)									

① Early production used Part #106220.

TRANSFORMER (POWER)

ITEM No	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
T1	117V	540VCT	5V	104130 ①						
	②1.63A	②.870A	②3A							
	SEC. 3	SEC. 4	SEC. 5							
	6.3V		②8.5A							

① Alternate Part #106062.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	RCA Victor PART No	Halldorson PART No	Merit PART No.	Ram PART No.	Rogers PART No	Stancor PART No	Thordarson PART No	Triad PART No
T2	Vert. Output	104085			V-318				A-115X
T3	Yoke-Horiz. (18.8MH) (110°)-Vert. (1.8MH)	104078	DF-613 ①		Y-111 ①		DY-26A ①	Y-47 ①	Y-80-2 YC-110
	Rear Cover & Centering Device	104460							
	Yoke Clamp	104409							
T4	Horiz. Output	106219	FB490 *	HVO-123 ②*$	X-166		HO-289 *	FLY-150 ② *	

① Use original rear cover and centering device.
② Drill new mounting hole(s).
$ This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	5	5	5			5	5	
	4	4	4			4	4	
	3	3	3			3	3	
	2	2	2			2	2	
	1	1	1			1	1	
Connect Width Coil Across →	2 & 1	2 & 1	2 & 1			2 & 1	2 & 1	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	NOTES
T5	7600Ω	3-4Ω	100037 ①	Z1003	A-3020	AU-804	A-3848	28S48	S-9Z	① Alternate Part no. used in Ch. KCS22BA, BB.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	RCA Victor PART No.	QUAM PART No	NOTES
SP1	6" x 9"	PM	3-4Ω	101182 ①	69A3	① Used in Models 21T9215, 6, 7 & U, 21T9235, 6, 7, 8 & M & MU & U, 21T9255, 6, 7, 8 & M & MU & U, 21T9396, 7 & U, 21T9415, 7 & U, 21RT9655, 6, 7 & U
SP2	3½"	PM	9Ω	102119 ②	3A1STZ9	② Used in Models 21T9415, 7 & U, 21RT9655, 6, 7 & U.
SP3	3½"	PM	9Ω	102119 ②	3A1STZ9	③ Used in Models 21T9225, 6, 7 & M & MU & U, 21T9355, 6, 7 & U, 21T9315, 6, 7, 8 & U, 21T9335, 7, 9 & U
	8"	PM	3-4Ω	74664 ③	8A2I	④ Used in Models 21T9153, 6, 7 & U, 21T9355, 6, 7 & U, 21RT9632, 5, 7 & U
	4" x 6"	PM	3-4Ω	104848 ④	46A15	⑤ Used in Models 21T9335, 7, 9 & U
	4" x 6"	PM		105822 ⑤		⑥ Used in Models 21T9133, 6, 7 & U
	4"	PM	3-4Ω	79696A ⑥	4A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	RCA Victor PART No	REPLACEMENT DATA	
K1	Sound IF Grid	56mmf, 47K	104329	Centralab	RC-421
				Sprague	PRC-1

FUSES

ITEM No.	TYPE	RATING	RCA Victor PART No. FUSE	RCA Victor PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No FUSE	BUSS PART No HOLDER
M1	2 1/4" Length of #32 Wire							
M2	2 1/4" Length of #28 Wire							
M3	2 1/4" Length of #28 Wire							

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	RCA Victor PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M4	K50	105517	1N90	1N295	Video Detector (Pigtail)

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A

FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M5	Lamp		#44, Not used in some versions
M6	Tuner	KRK72K	VHF Ch. KCS122BW, BAB
	Tuner	KRK46U	VHF Ch. KCS122BP
	Tuner	KRK46W	VHF Ch. KCS122BA, BE, BH
	Tuner	KRK72H	VHF Ch. KCS122BM, BAD, BAF
	Tuner	KRK72J	VHF Ch. KCS122BC, BK
	Tuner	KRK47U	VHF with UHF provisions Ch. KCS122BR
	Tuner	KRK47W	VHF with UHF provisions Ch. KCS122BB, BF, BJ
	Tuner	KRK73H	VHF with UHF provisions Ch. KCS122BN, BAE, BAH
	Tuner	KRK73J	VHF with UHF provisions Ch. KCS122BD, BL
	Tuner	KRK73K	VHF with UHF provisions Ch. KCS122BAA, BAC
	Tuner	KRK66A	UHF Ch. KCS122BD, BN, BR, BAE, BAH
	Tuner	KRK66J	UHF Ch. KCS122BF, BJ
	Tuner	KRK66P	UHF Ch. KCS122BB, BL, BAA, BAC
M7	Switch Assembly	105068	Programmer (13 SPST Slide Type)
M8	Switch	105069	Selector, 13 Position (Rotary Wafer Type)
M9	Thermal Switch	106542	
M10	Motor Assembly	105772	Tuner Drive
	Printed Board	106200	Video IF (Less Tubes) Ch. KCS122BM, BN, BW, BAA, BAB, BAC, BAD, BAE, BAF, BAH
	Printed Board	106201	Video IF (Less Tubes) Ch. KCS122BA, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BP, BR
	Printed Board	104518	Sound (Less Tubes) All Chassis except KCS122BA, BB
	Printed Board	104106	Sound (Less Tubes) Ch. KCS122BA, BB
	Printed Board	106754	Sync & Vert. (Less Tubes)
	Printed Board	106160	Horiz. (Less Tubes)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	106521	Models 21T9315, 6, 7, 8, & U, 21T9415, 7, & U, 21RT9655, 6, 7, & U, 21T9355, 6, 7, & U, 21T9396, 7, & U
Safety Glass	106275	Models 21T9152, 5, 6, 7, & U, 21RT9632, 5, 7, & U, 21T9132, 5, 7, & U, 21T9225M, 6M, 7M, & MU
Safety Glass	106274	Models 21T9235M, 6M, 7M, 8M, & MU, 21T9255M, 6M, 7M, 8M, & MU
Safety Glass	106522	Models 21T9335, 7, 9, & U
Mask	106515	Models 21T9355, 6, 7, & U, 21T9396, 7, & U, 21T9335, 7, 9, & U, 21T9315, 6, 7, 8, & U, 21T9415, 7, & U, 21RT9655, 6, 7, & U
Mask	106269	Models 21T9215, 6, 7, & U, 21T9235, 6, 7, 8, & U, 21T9255, 6, 7, 8, & U, 21T9235M, 6M, 7M, 8M,& MU, 21T9255M, 6M, 7M, 8M & MU
Mask	106464	Models 21T9152, 5, 6, 7, & U, 21RT9632, 5, 7, & U, 21T9132, 5, 7, & U
Mask	106270	Models 21T9225, 6, 7, & U, 21T9225M, 6M, 7M, 8M, & MU
Knob	106097	VHF Channel Selector, Model 21T9132
Knob	106280	VHF Channel Selector, Models 21T9152, 5, 6, 7
Knob	106766	VHF Channel Selector, Models 21T9225M, 6M, 7M
Knob	106598	VHF Channel Selector, Models 21T9355, 6, 7, 21T9396, 7, 9, 21T9435, 6, 7
Knob	106762	VHF Channel Selector, Models 21RT9632, U
Knob	106285	VHF Channel Selector, Models 21T9238M, 21T9318, 21T9258M
Knob	106096	VHF Channel Selector, Models 21T9236M, 7M, 21T9256M, 7M, 21T9316, 7, 21T9417, 21T9137, 21T9337, 9
Knob	106527	VHF Channel Selector, Models 21RT9637, U, 21RT9656, U, 21RT9657, U
Knob	106095	VHF Channel Selector, Models 21T9135, 21T9315, 21T9415, 21T9335, 21T9235M, 21T9255M
Knob	106526	VHF Channel Selector, Models 21RT9635, U, 21RT9655, U
Dial	104416	VHF Channel Indicator, Models 21RT9632, 5, 7, 21RT9655, 6, 7
Dial	104417	VHF Channel Indicator with UHF markings, Models 21RT9632U, 5U, 7U, 21RT9655U, 6U, 7U
Dial	106599	VHF Channel Indicator with UHF markings, Models 21T9355U, 6U, 7U, 21T9396U, 7U, 9U, 21T9435U, 6U, 7U
Knob	106282	UHF Dial, Models 21T9355U, 6U, 7U, 21T9225MU, 6MU, 7MU, 21T9152U, 5U, 6U, 7U, 21T9396U, 7U, 9U, 21T9435U, 6U, 7U
Knob	106103	UHF Dial, Models 21T9316U, 7U, 8U, 21T9236MU, 7MU, 8MU, 21T9256MU, 7MU, 8MU, 21T9337U, 9U, 21T9417U, 21RT9637U, 21RT9656U, 21RT9657U, 21T9137U
Knob	106104	UHF Dial, Models 21T9132U, 21RT9632U
Knob	106102	UHF Dial, Models 21T9335U, 21T9235MU, 21T9255MU, 21T9315U, 21T9415U, 21RT9635U, 21RT9655U, 21T9135U
Knob	106767	VHF-UHF Channel Selector, Models 21T9225MU, 6MU, 7MU
Knob	106281	VHF-UHF Channel Selector, Models 21T9152U, 5U, 6U, 7U
Knob	106286	VHF-UHF Channel Selector, Models 21T9238MU, 21T9258MU
Knob	106101	VHF-UHF Channel Selector, Model 21T9132U
Knob	106099	VHF-UHF Channel Selector, Models 21T9236MU, 7MU, 21T9256MU, 7MU, 21T9316U, 7U, 21T9417U, 21T9137U
Knob	106098	VHF-UHF Channel Selector, Models 21T9315U, 21T9415U, 21T9135U, 21T9335U, 21T9235MU, 21T9255MU
Knob	106597	VHF-UHF Channel Selector, Models 21T9355, 6, 7, & U, 21T9396, 7, 9, & U, 21T9435, 6, 7, & U
Knob	102580	UHF Channel Selector, Models 21T9132U, 21RT9632U
Knob	102749	UHF Channel Selector, Models 21T9318U, 21T9238MU, 21T9258MU
Knob	102578	UHF Channel Selector, Models 21T9316U, 7U, 21T9337U, 9U, 21T9256MU, 7MU, 21T9417U, 21RT9637U, 21RT9656U, 21RT9657U, 21T9137U
Knob	102653	UHF Channel Selector, Models 21T9335U, 21T9235MU, 21T9255MU, 21T9315U, 21T9415U, 21RT9635U, 21RT9655U, 21T9135U
Knob	101144B	UHF Tuning, Models 21T9435U, 6U, 7U, 21T9225MU, 6MU, 7MU, 21T9152U, 5U, 6U, 7U, 21T9355U, 6U, 7U, 21T9396U, 7U, 9U
Knob	106596	Fine Tuning, Models 21T9152, 5, 6, 7, & U, 21T9355, 6, 7, & U, 21T9396, 7, 9, & U, 21T9435, 6, 7, & U
Knob	101276	Fine Tuning, Models 21T9225M, 6M, 7M, & MU
Knob	106761	Fine Tuning, Models 21RT9632, U
Knob	104401	Fine Tuning, Models 21T9132, U
Knob	104399	Fine Tuning, Models 21T9238M, & MU, 21T9258M, & MU
Knob	106531	Fine Tuning, Models 21T9318, U
Knob	104398	Fine Tuning, Models 21T9236M, 7M, & MU, 21T9256M, 7M, & MU, 21T9137, U
Knob	106530	Fine Tuning, Models 21T9316, 7, & U, 21T9417, & U, 21RT9637, & U, 21RT9656, & U, 21RT9657, U, 21T9337, 9, & U
Knob	104397	Fine Tuning, Models 21T9135, U, 21T9235M, & MU, 21T9255M, & MU
Knob	106529	Fine Tuning, Models 21T9315, U, 21T9415, U, 21RT9635, U, 21RT9655, U, 21T9335, U
Knob	106278	Volume, Models 21T9152, 5, 6, 7, & U, 21T9225M, 6M, 7M, & MU, 21T9355, 6, 7, & U, 21T9396, 7, 9, & U, 21T9435, 6, 7, & U
Knob	106094	Volume, Models 21T9132, U, 21RT9632, U
Knob	106284	Volume, Models 21T9318, U, 21T9238M, & MU, 21T9258M, & MU
Knob	106100	Volume, Models 21T9236M, 7M, & MU, 21T9256M, 7M, & MU, 21T9316, 7, & U, 21T9337, 9, & U, 21T9417, U, 21RT9637, U, 21RT9656, U, 21RT9657, U, 21T9137, U

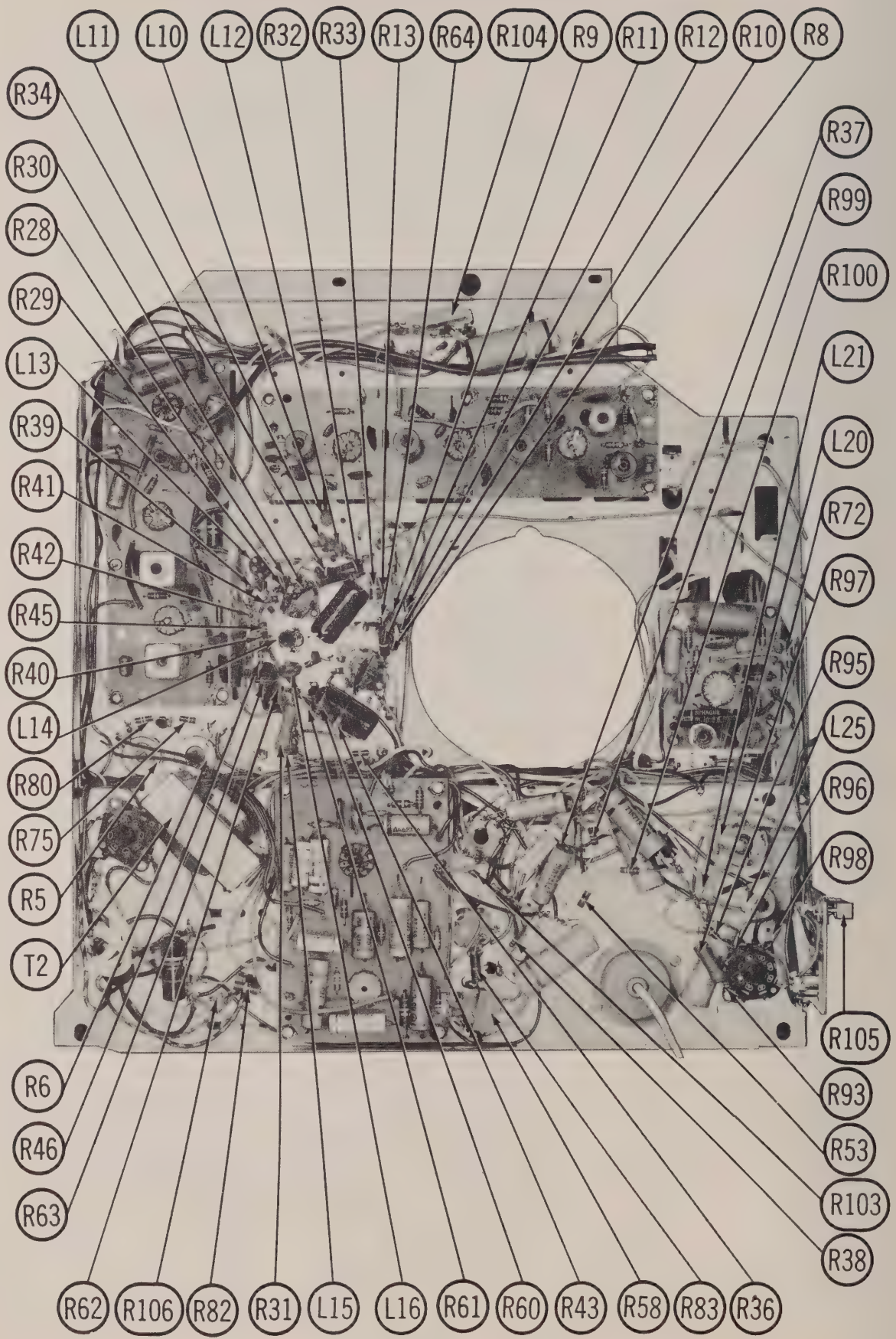
PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS (cont)

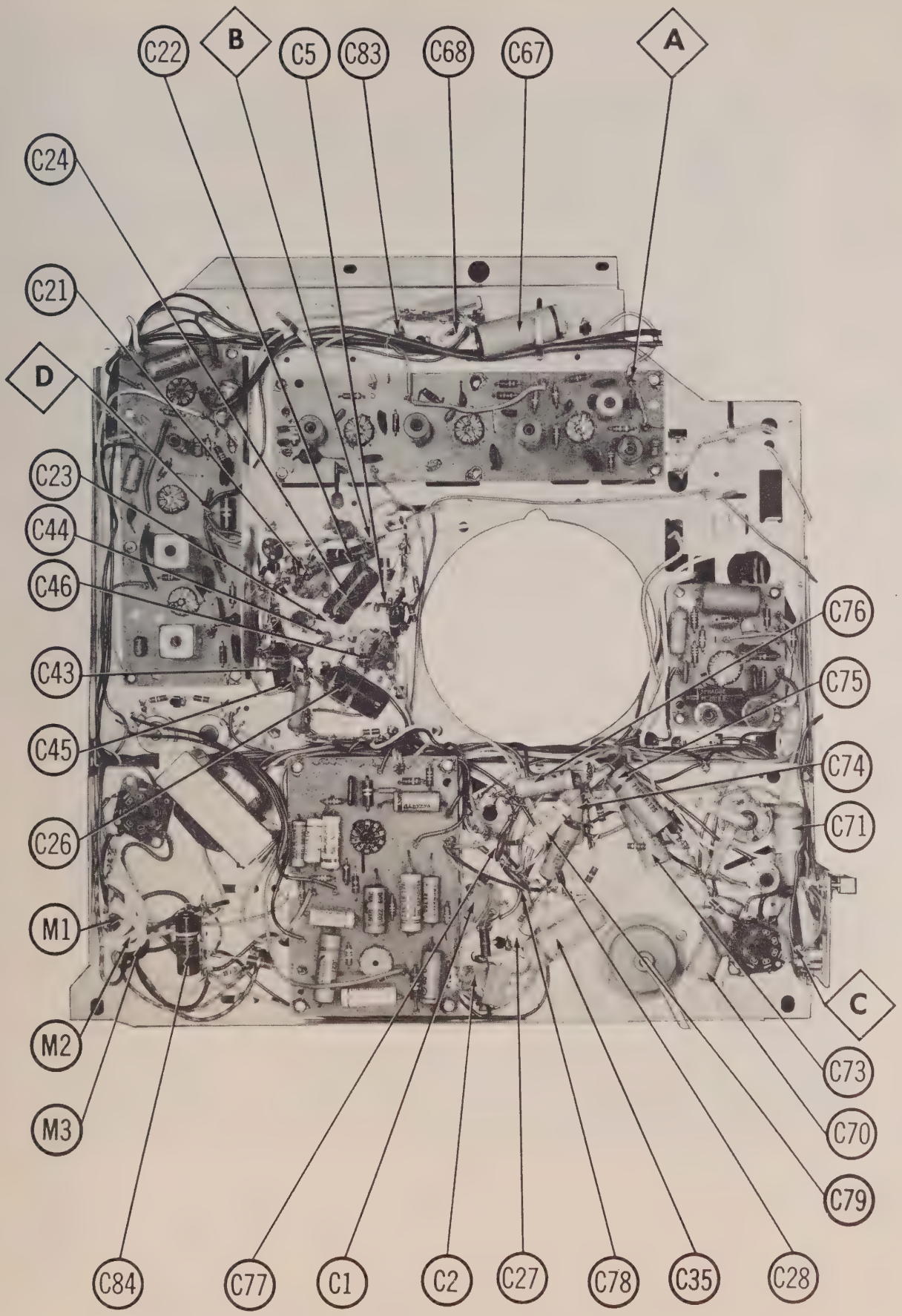
NAME	PART NO.	DESCRIPTION
Knob	106093	Volume, Models 21T9335, U, 21T9235M, & MU, 21T9255M, & MU, 21T9315, U, 21T9415, U, 21RT9635, U, 21RT9655, U, 21T9135, U
Knob	106277	Contrast, Models 21T9152, 5, 6, 7, & U, 21T9225M, 6M, 7M, & MU, 21T9355, 6, 7, & U, 21T9396, 7, 9, & U, 21T9435, 6, 7, & U,
Knob	106092	Contrast, Models 21T9132, U, 21RT9632, U
Knob	106283	Contrast, Models 21T9318, U, 21T9238M, & MU, 21T9258M, & MU
Knob	106091	Contrast, Models 21T9236M, 7M, & MU, 21T9256M, 7M, & MU, 21T9316, U, 21T9337, 9, & U, 21T9317, U, 21T9417, U, 21RT9637, U, 21RT9656, U, 21RT9657, U, 21T9137, U
Knob	106090	Contrast, Models 21T9335, U, 21T9235M, MU, 21T9255M, MU, 21T9315, U, 21T9415, U, 21RT9635, U, 21RT9655, U, 21T9135, U
Knob	106279	Brightness, Vert. Hold, Tone, Models 21T9225M, 6M, 7M, & MU, 21T9152, 5, 6, 7, & U, 21RT9632, 5, 7, & U, 21T9435, 6, 7, & U
Knob	102581	Brightness, Vert. Hold, Tone, Models 21T9235M, 6M, 7M, 8M, & MU, 21T9315, 6, 7, 8, & U, 21T9255M, 6M, 7M, 8M, & MU, 21T9355, 6, 7, & U, 21T9396, 7, 9, & U, 21T9415, 7, & U, 21RT9655, 6, 7, & U, 21T9132, 5, & U
Knob	106575	Clock Dial , Models 21T9225M, 6M, 7M, & MU
Cabinet	Z4445	Models 21T9132, U
Cabinet	Z4446	Models 21T9135, U
Cabinet	Z4447	Models 21T9137, U
Cabinet	Z4415	Models 21T9152, U
Cabinet	Z4416	Models 21T9155, U
Cabinet	Z4417	Model 21T9156, U
Cabinet	Z4418	Model 21T9157, U
Cabinet	M4439	Model 21T9225M
Cabinet	M4440	Model 21T9225MU
Cabinet	M4441	Model 21T9226M
Cabinet	M4442	Model 21T9226MU
Cabinet	M4443	Model 21T9227M
Cabinet	M4444	Model 21T9227MU
Cabinet	M4391	Models 21T9235M, MU
Cabinet	M4392	Models 21T9236M, MU
Cabinet	M4393	Models 21T9237M, MU
Cabinet	M4394	Models 21T9238M, MU
Cabinet	M4395	Models 21T9255M, MU
Cabinet	M4396	Models 21T9256M, MU
Cabinet	M4397	Models 21T9257M, MU
Cabinet	M4398	Models 21T9258M, MU
Cabinet	X4475	Models 21T9335, U
Cabinet	X4476	Models 21T9337, U
Cabinet	X4477	Models 21T9339, U
Cabinet	M4399	Model 21T9355
Cabinet	M4400	Model 21T9335U
Cabinet	M4401	Model 21T9356
Cabinet	M4402	Model 21T9356U
Cabinet	M4403	Model 21T9357
Cabinet	M4404	Model 21T9357U
Cabinet	X4405	Model 21T9396
Cabinet	X4406	Model 21T9396U
Cabinet	X4407	Model 21T9397
Cabinet	X4408	Model 21T9397U
Cabinet	X4437	Model 21T9399
Cabinet	X4438	Model 21T9399U
Cabinet	M4409	Models 21T9315, U
Cabinet	M4410	Models 21T9316, U
Cabinet	M4411	Models 21T9317, U
Cabinet	M4412	Models 21T9318, U
Cabinet	M4413	Models 21T9415, U
Cabinet	M4414	Models 21T9417, U
Cabinet	M4478	Model 21T9435
Cabinet	M4479	Model 21T9435U
Cabinet	M4480	Model 21T9436
Cabinet	M4481	Model 21T9436U
Cabinet	M4482	Model 21T9437
Cabinet	M4483	Model 21T9437U
Cabinet	Z4419	Models 21RT9635, U
Cabinet	Z4420	Models 21RT9637, U
Cabinet	Z4484	Models 21RT9632, U
Cabinet	M4421	Models 21RT9655, U
Cabinet	M4422	Models 21RT9656, U
Cabinet	M4423	Models 21RT9657, U
Legs	X5023	Models 21T9225M, MU
Legs	X5024	Models 21T9226M, MU
Legs	X5025	Models 21T9227M, MU
Legs	X3985	Models 21T9235M, MU, 21T9255M, MU
Legs	X3986	Models 21T9236M, MU, 21T9256M, MU
Legs	X3987	Models 21T9237M, MU, 21T9257M, MU
Legs	X3988	Models 21T9238M, MU, 21T9258M, MU
Cover	103994	Hidden Control, Models 21T9132, U
Cover	104519	Hidden Control, Models 21T9135, U
Cover	103995	Hidden Control, Models 21T9137, U
Cover	105809	Hidden Control, Models 21T9335, U
Cover	104242	Hidden Control & Case Assy., Models 21T9315, U, 21T9355, U, 21T9415, U, 21RT9655, U, 21T9235M, MU, 21T9255M, MU
Cover	106624	Hidden Control & Case Assy., Models 21T9236M, MU, 21T9316, U, 21T9356, U, 21RT9656, U, 21T9256M, MU
Cover	104244	Hidden Control & Case Assy., Models 21T9317, U, 21T9357, U, 21T9417, U, 21RT9657, U, 21T9237M, MU, 21T9257M, MU
Cover	104600	Hidden Control & Case Assy., Models 21T9318, U, 21T9238M, MU, 21T9258M, MU
Cover	105810	Hidden Control & Case Assy., Less Control Marker, Models 21T9396, U
Cover	105811	Hidden Control & Case Assy., Less Control Marker, Models 21T9397, U, 21T9337, U
Cover	106648	Hidden Control & Case Assy., Models 21T9399, U, 21T9339, U
Cover	106580	Transmitter Housing & Escutcheon Assy., Models 21RT9632, 5, 7, & U, 21RT9655, 6, 7, & U

WIRING DATA

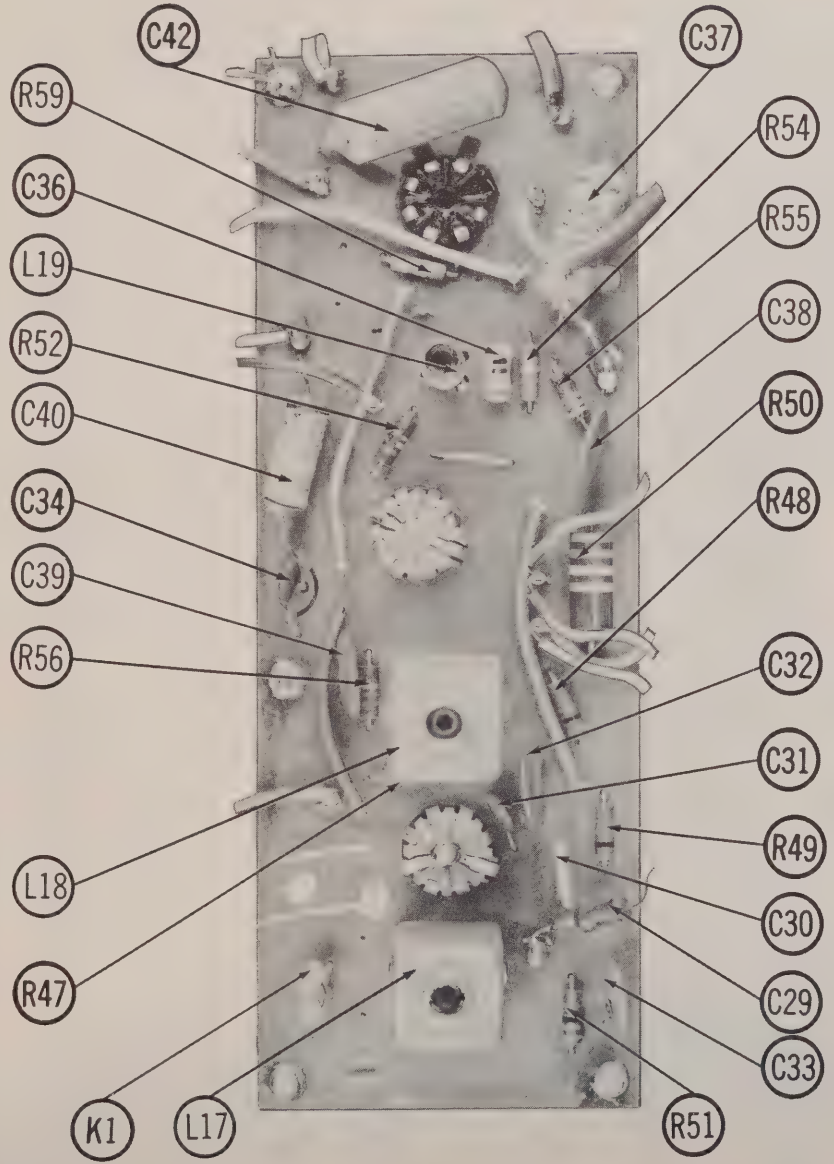
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



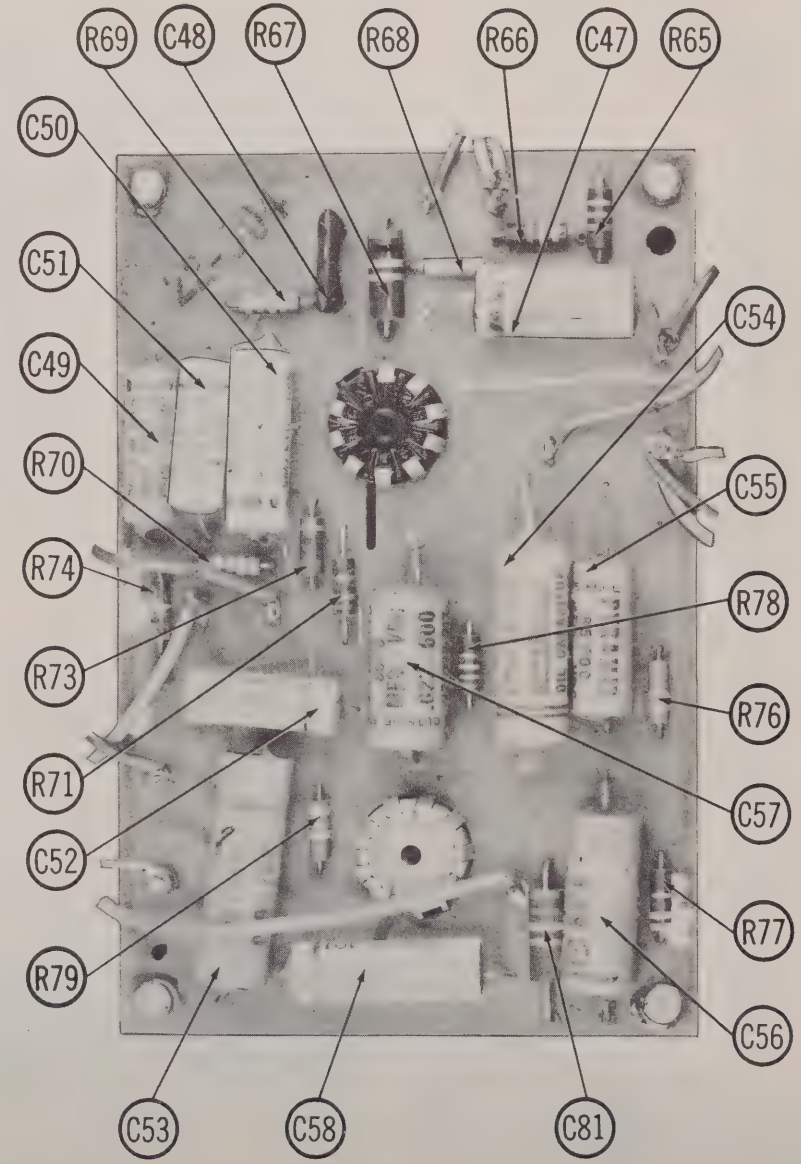
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



SOUND PRINTED BOARD



SYNC & VERT PRINTED BOARD

REMOTE CONTROL PARTS LIST & DESCRIPTION (cont)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	RF Choke	106842					
L2	1st Hi Freq. Trans.	106715					
L3	2nd Hi Freq. Trans.	106716					
L4	1st Low Freq. Rect.	106717					
L5	2nd Low Freq. Rect.	106717					
L6	3rd Low Freq. Rect.	106717					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.47A	280VCT @.025A	6.3V @4A	106481						

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M1	Lamp		#47
M2	Switch	106478	Remote, On-Off (DPDT, Slide Type)
M3	Relay	106483	On-Off
M4	Relay	106483	Channel Selector
M5	Relay	106483	Sound
M6	Relay	106480	Latching (On-Off)
M7	Relay	106855	Latching (Sound)

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N407	Osc. #1		2N407	2N362	2N407	PNP
X2	2N407	Osc. #2		2N407	2N362	2N407	PNP
X3	2N407	Amplifier		2N407	2N362	2N407	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C29	20	15	106735	XPP-12050	NL20-15	TT15X20	ML20-15	MMT-0220	TE-1157

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C30	5-70		71496						
C31	39		103733	1469-000039	TCZ-39	22R5Q39		MS-439	10%
C32	820		106734	1464-00082		1R5T82		MS-382	
C33	.01	100	106736	P285N-01	D6-103	LT6S1		2WF-S10	
C34	5-70		71496						
C35	82		106291	1469-000082	DTZ-82	22R5Q82		MS-482	10%
C36	820		106734	1464-00082		1R5T82		MS-382	
C37	.01	100	106736	P285N-01	D6-103	LT6S1		2WF-S10	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R47	150K 5%			
R48	100Ω 5%			
R49	6800Ω 5%			
R50	150K 5%			

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R51	100Ω 5%			
R52	6800Ω 5%			
R53	10Ω 5%			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L7	41.75KC Osc. Coil	106731					Pri. Tapped @.5Ω, 3.7Ω
L8	40.5KC Osc. Coil	106731					Pri. Tapped @ .5Ω, 3.7Ω
L9	Transmitter Output Trans.	106732					Tapped @ 2Ω

BATTERIES

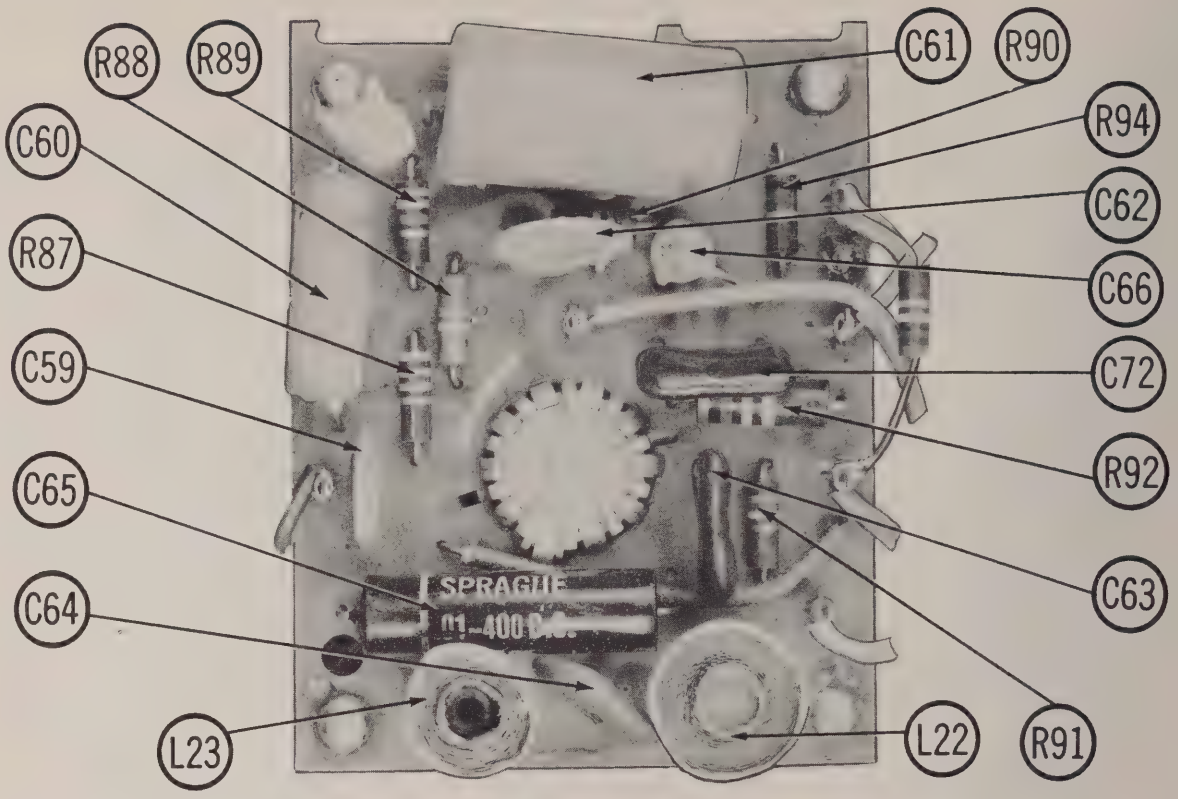
ITEM No.	VOLTAGE	RCA Victor PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M8	13.5V *	VS-304		XX9		239		M-1900	* 9 volt tap used

MISCELLANEOUS

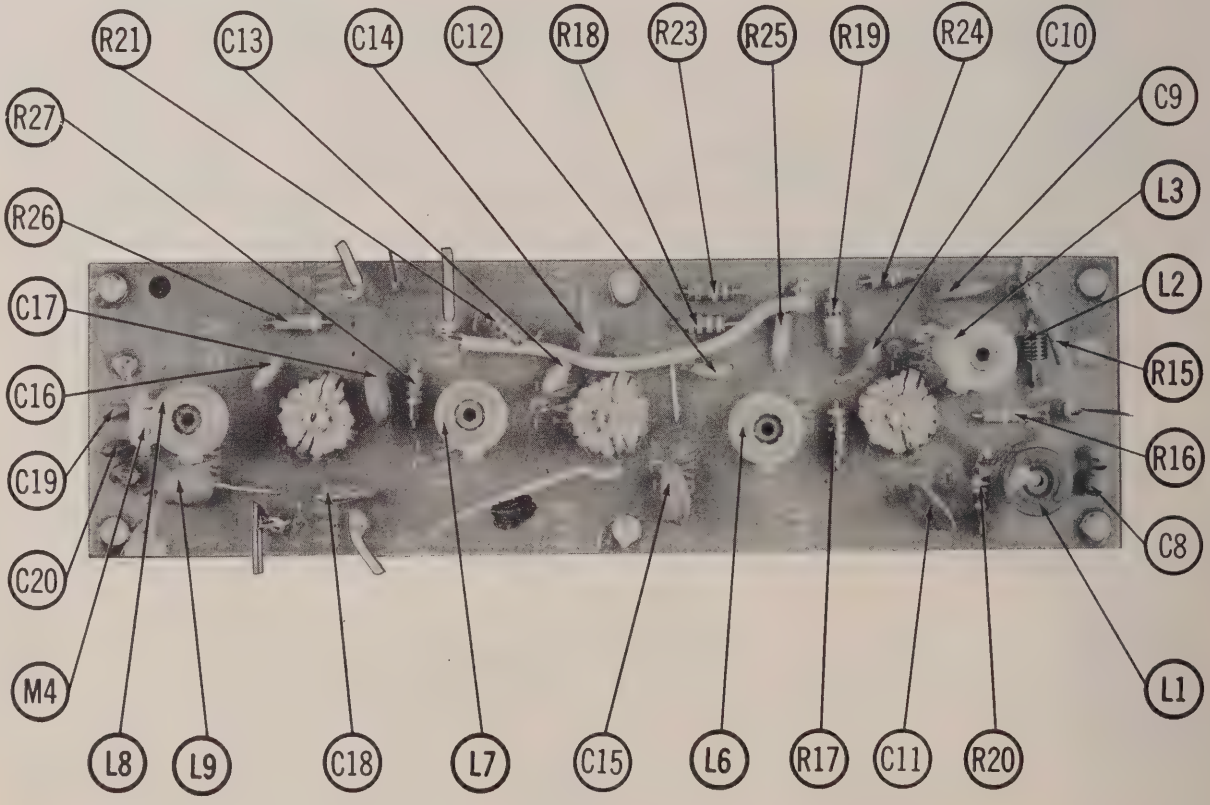
ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M9	Switch	106730	Picture & On-Off, Sound, Channel (3 Section push type momentary contact)

RCA VICTOR CHASSIS KCS122BA, BAA, BAB, BAC, BAD, BAE, BAF, BAH, BB, BC, BD, BE, BF, BH, BJ, BK, BL, BM, BN, BP, BR, KRK83A, KRK84A

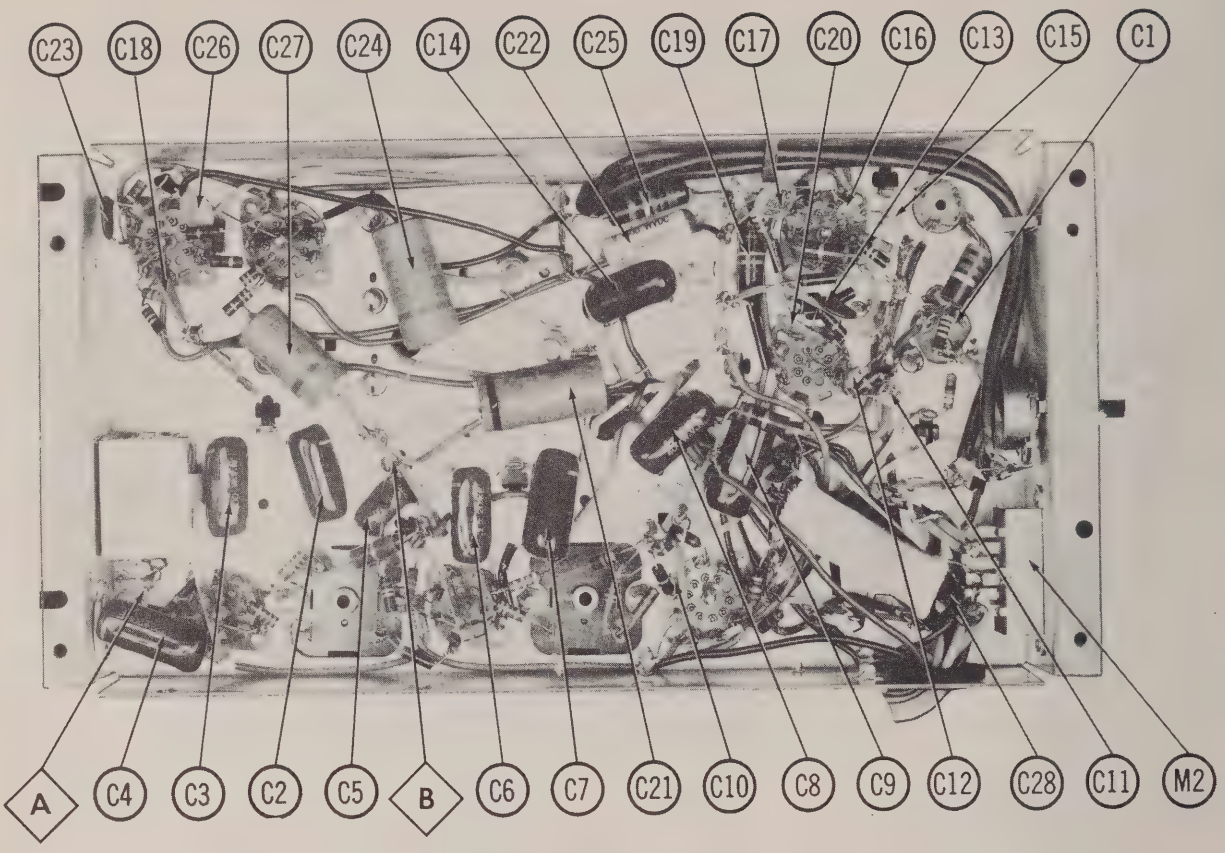
FOLDER 1



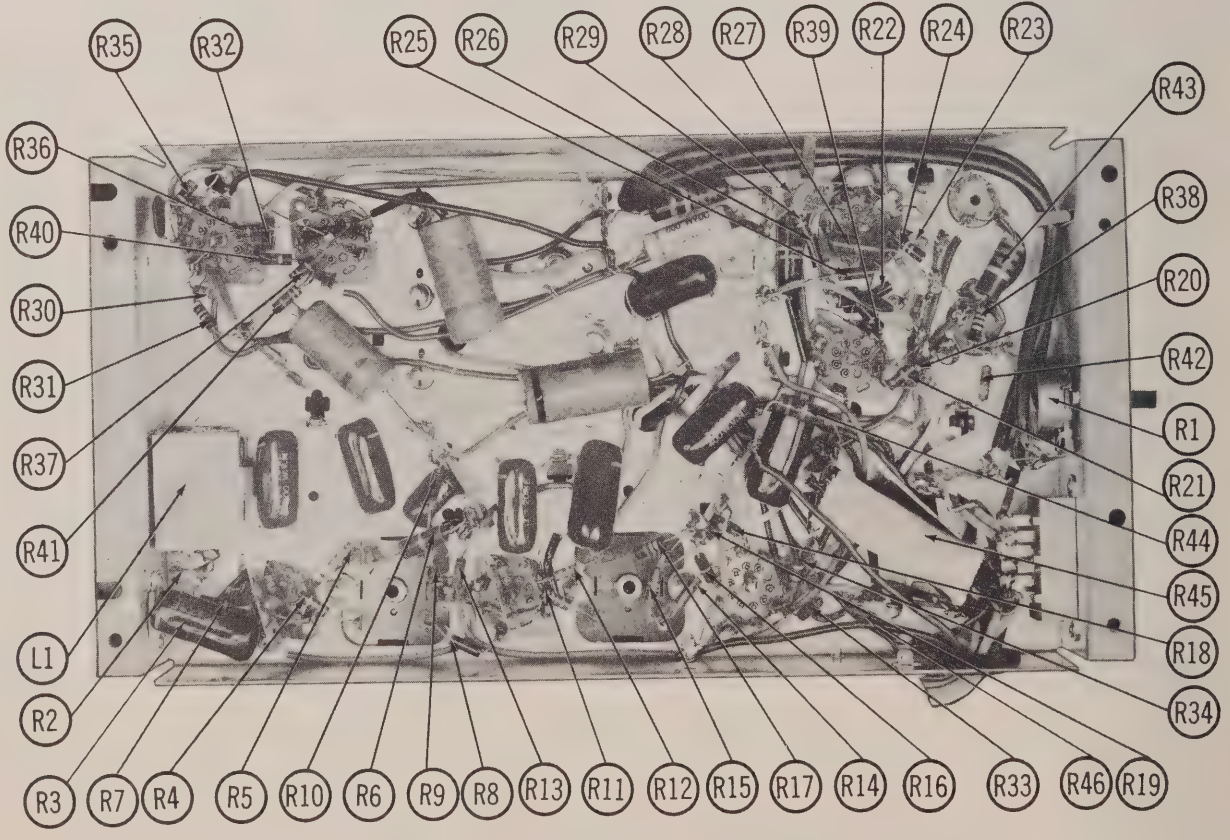
HORIZ PRINTED BOARD



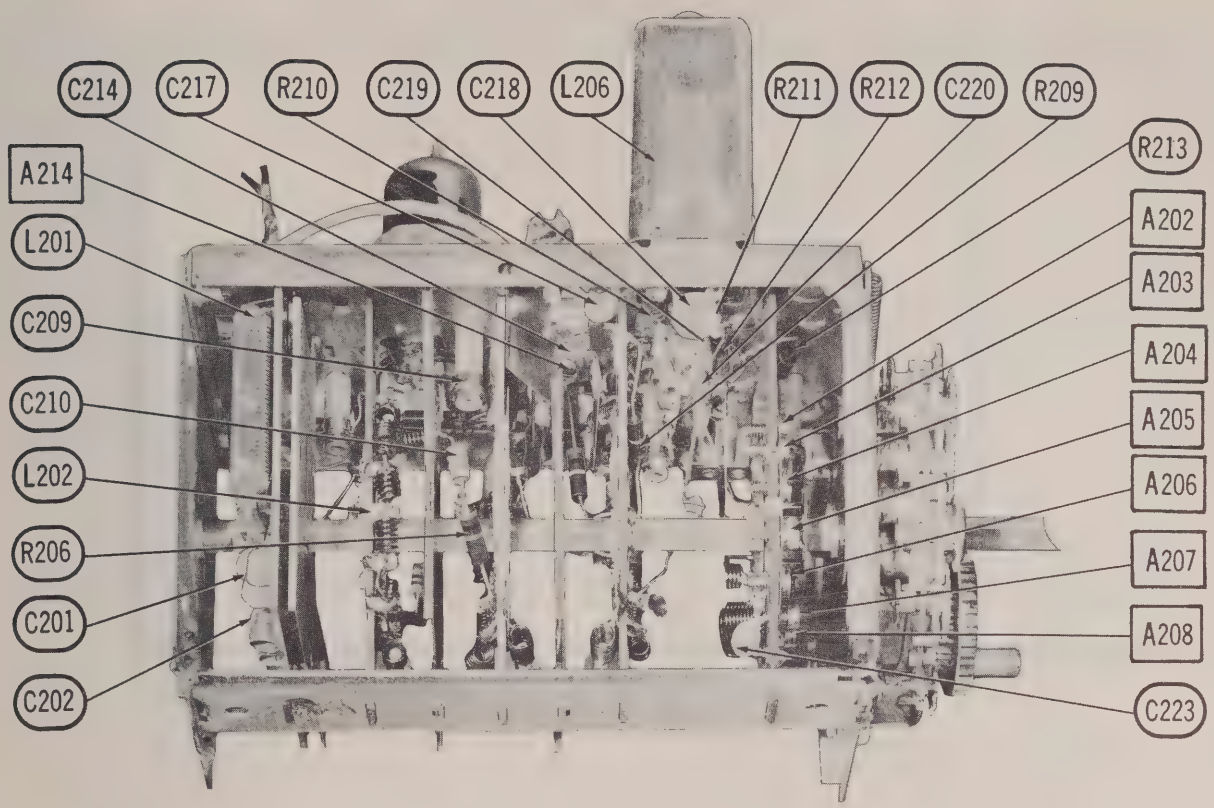
VIDEO IF PRINTED BOARD



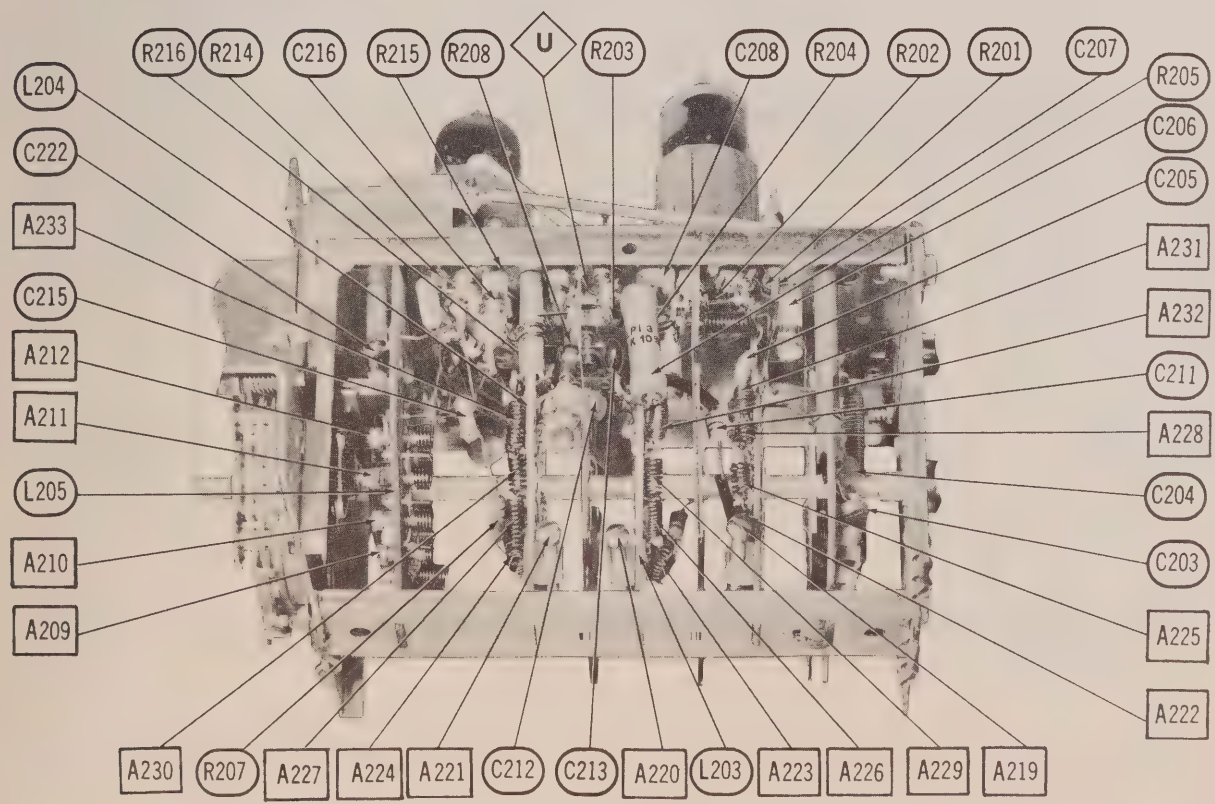
REMOTE RECEIVER BOTTOM VIEW - CAPACITOR & ALIGN IDENT



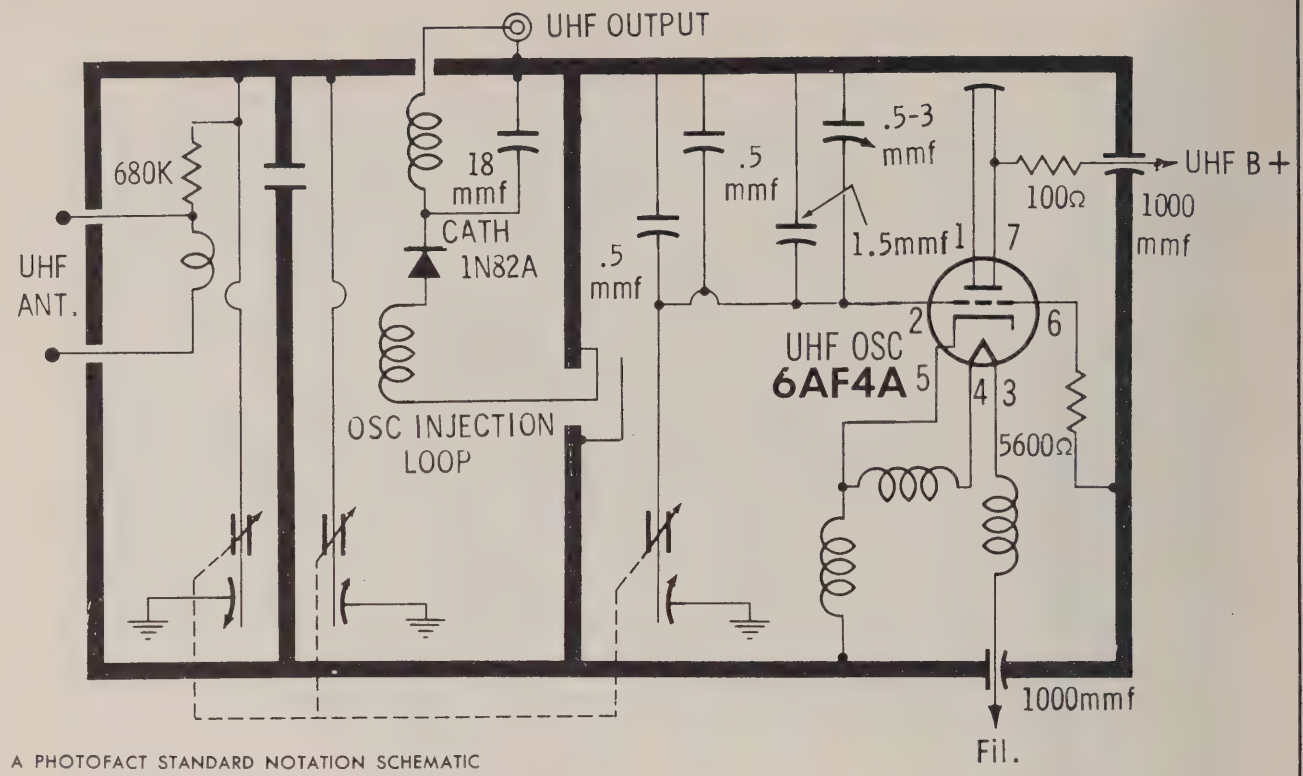
REMOTE RECEIVER BOTTOM VIEW - RESISTOR IDENT.



TUNER KRK72K - LEFT SIDE



TUNER KRK72K - RIGHT SIDE



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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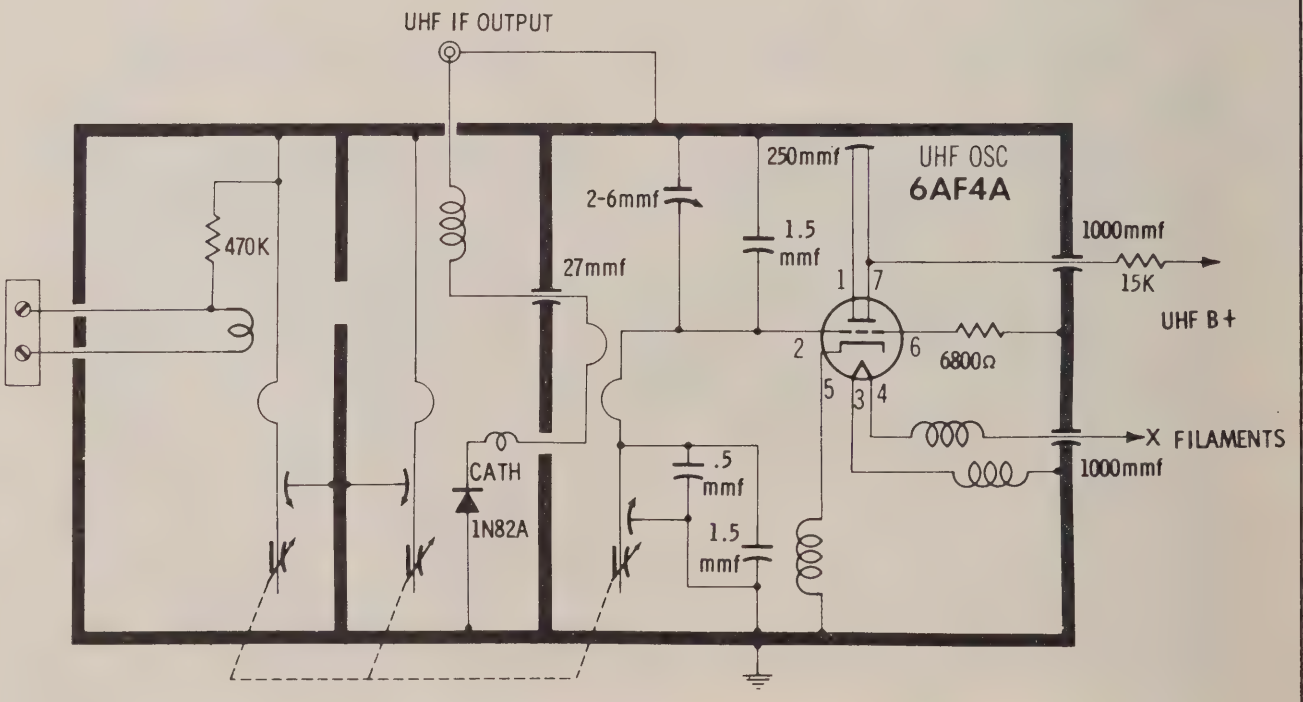
UHF TUNER KRK66A, J, P



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALTERNATE CIRCUIT UHF TUNER KRK66A, J, P

TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
22.	Fig. 201	High side thru adaptor (Fig. 203) to point Ⓥ. Low side to chassis.	44MC (10MC Swp)	41.25MC 45.75MC	UHF	Connect 330mmf capacitor in series with a 180Ω resistor from plate of Mixer (V202) to chassis with resistor next to chassis. High side of scope thru demodulator probe to junction of capacitor and resistor. Low side to chassis.	A234, A235	Use only enough sweep generator output to provide a usable pattern on scope. Adjust A234 and A235 for response similar to Fig. 204.
23.	Two 120Ω Carbon Resistors	Across UHF terminals with 120Ω in each lead. Reconnect cable from UHF tuner to VHF tuner Connect separate marker generator loosely to grid of 1st Video IF Amp.(V1).	Tune over entire UHF range	42.5MC 45.0MC 45.75MC	Tune over UHF range	Across Video Det. load.		Use only enough sweep generator output to provide a usable pattern on scope. Check tracking across UHF band if necessary, retouch A234 and A235 for response similar to Fig. 205.

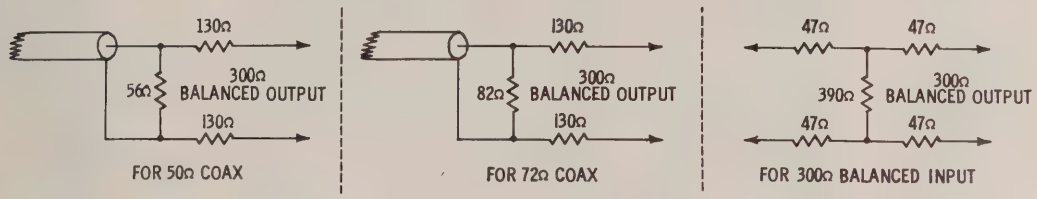


FIG. 201

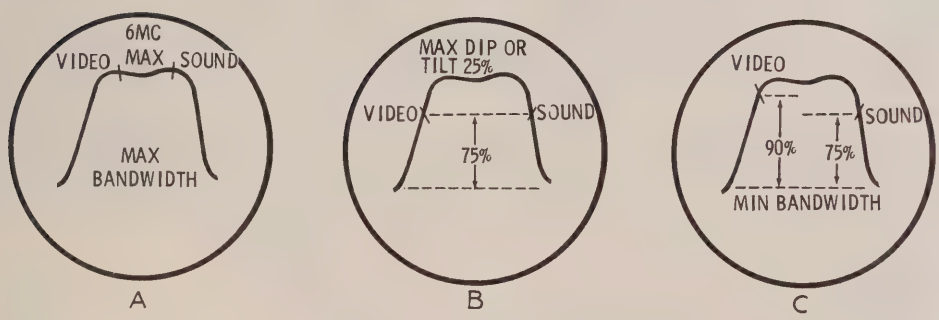


FIG. 202

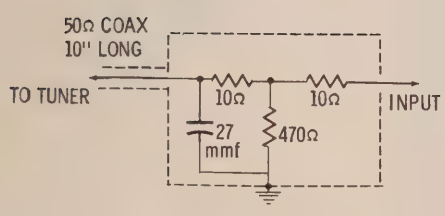


FIG. 203

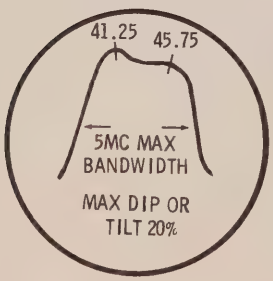


FIG. 204

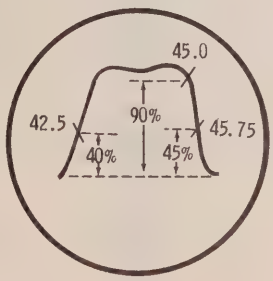


FIG. 205

TUNER PARTS LIST AND DESCRIPTIONS

KRK 46U, W, KRK 72H, J, K

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BZ7A	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CQ8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	18		102646		DTZ-18		CNO-418	5GA-Q18	5%
C202	5		102571		DTZ-5		CNO-547	5GA-V5	5%
C203	27		102352		DTZ-27		CNO-427	5GA-Q27	5%
C204	33		102573		TCZ-33		CNO-433	5TCC-Q33	NPO 5%
C205	220		100672	DI 220	DD-221	L10T22	B-322	5GA-T22	
C206	.34-3		105757						
C207	1000		105660	EF-001	MFT-1000			503C-D1	
C208	220		100672	DI 220	MD-221	L10T22	JL-322	5GA-T22	10%
C209	.34-3		105757						
C210	.22		105857						
C211	1.0		77690	NPO-SI 1	TCZ-1		CNO-510	5TCCB-V1	10%
C212	270		77838	NPO-SI 270	D6-271			5GA-T27	10%
C213	82		103560	1469-000082	DTZ-82	22R5Q82	CNO-482	MS-482	5%
C214	140-220		103519						
C215	1.0		105781					5TCCB-V1	NPO ±.1mmf
C216	.34-3		105757						
C217	1000		77252	BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C218	68		104224		DTN-68		CN7-468	5TCU-Q68	N750 5% ①
C219	470		78622	DI 470	MD-471		JL-347	5GA-T47	10%
C220	8		106043	NPO-SI 8.2		LT6V8		5GA-V8	10%
C221	1000		105660	EF-001	MFT-1000			503C-D1	
C222	12		106193						N220 5%
C223	68		105855	DI 68	DD-680	L10Q68	CNO-468	5GA-Q68	10%
C224	1000		105660	EF-001	MFT-1000			503C-D1	
C225	1000		105660	EF-001	MFT-1000			503C-D1	

① Tuner KRK72J uses 120mmf 10% in this application (Part #106194).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R201	10K 10%			
R202	100K 5%			
R203	1meg 5%			
R204	1meg 5%			
R205	1800Ω	3	106719	
R206	100Ω 5%			
R207	3300Ω 5%			
R208	100K 5%			

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R209	100K 5%			
R210	27K 5%			
R211	470Ω 5%			
R212	1000Ω 5%			
R213	5600Ω 5%			
R214	6800Ω 5%			
R215	100Ω 5%			
R216	120Ω 5%			
R217	100K 5%			

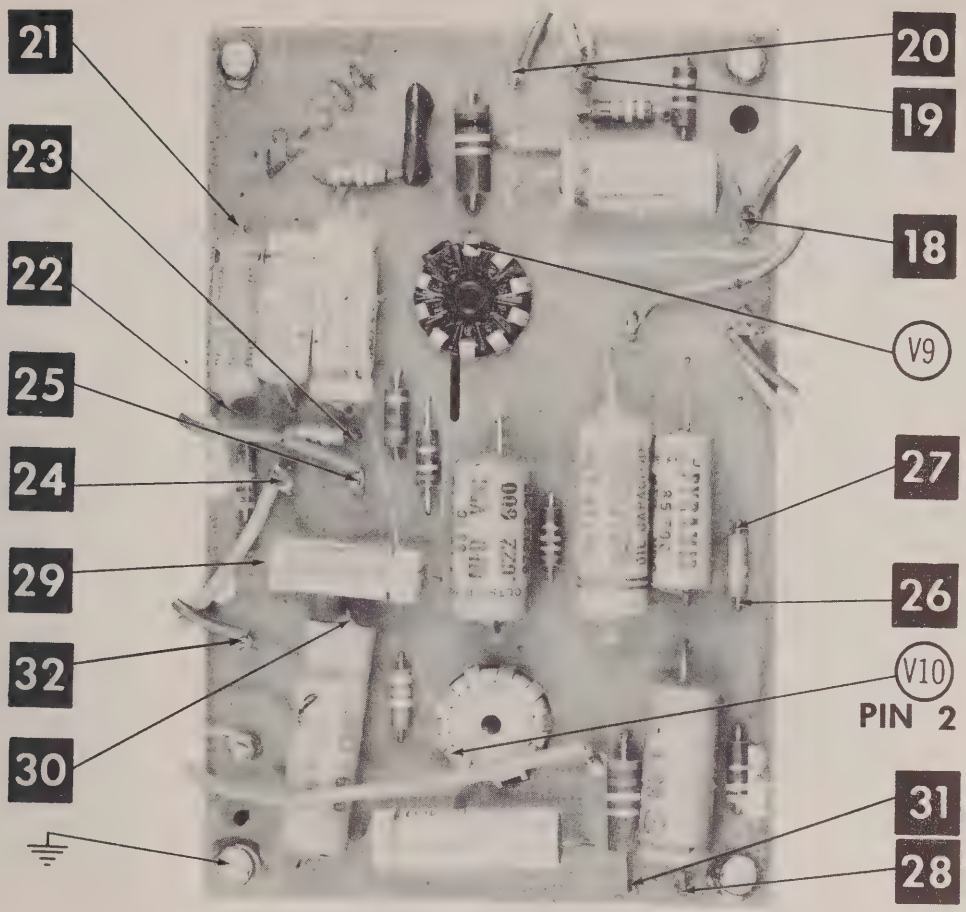
COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L201	Ant. Trans.	105924	Includes IF Trap Assy.
L202	Ant. Coils	103564	Channel 2-13, Includes wafer assy.
L203	RF Coils	103562	Channel 2-13, Includes wafer assy.

ITEM No.	USE	RCA Victor PART No.	NOTES
L204	Mixer Grid Coils	103563	Channel 2-13, Includes wafer assy.
L205	Osc. Coils	106503 ①	Channel 2-13, Includes wafer assy.
L206A B	Mixer Plate Trap Coil	105506	

① Tuners KRK46U, W use Part #106192.

CircuiTrace Numbers 18 thru 32



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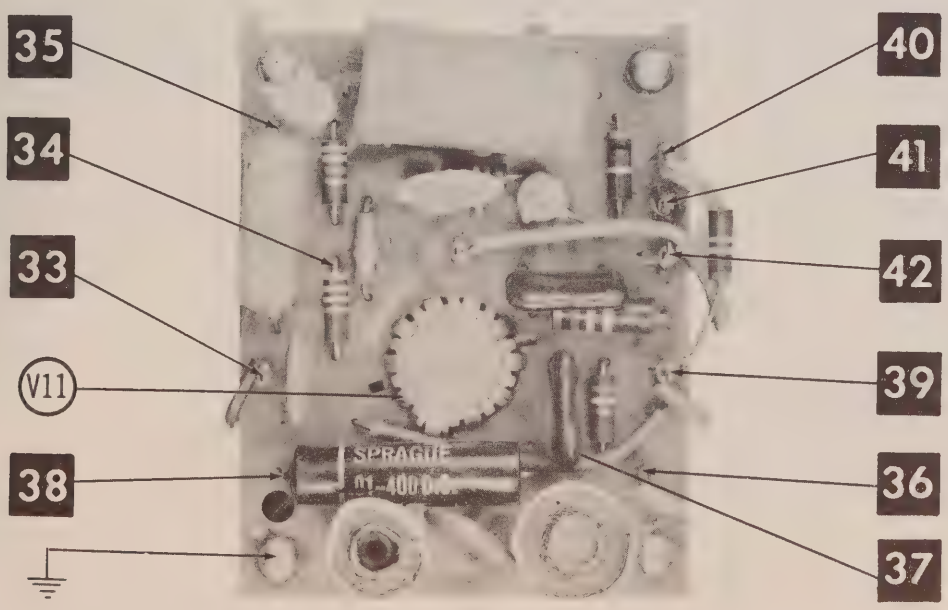
SYNC & VERT
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

CircuiTrace Numbers 33 thru 42



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HORIZ
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CF6	470K	47Ω	0Ω	.2Ω	††680Ω	††680Ω	0Ω		
V2	6CB6	††13K	††22Ω	0Ω	.1Ω	†680Ω	†680Ω	80K		
V3	6CB6	.1Ω	180Ω	.1Ω	0Ω	†5100Ω	†5100Ω	0Ω		
V4	6AW8A	39Ω	2200Ω	†16K	.1Ω	0Ω	●120Ω	680K	†47K	†6800Ω
V5	6BU8	†4700Ω	†8200Ω	2.5meg	0Ω	.1Ω	● †45K	†4700Ω	†820K	†3.7meg
V6	6AU6	47K	0Ω	0Ω	.1Ω	†5700Ω	†19K	82Ω		
V7	6DT6	4Ω	560Ω	.1Ω	0Ω	ǂ 825K	†18K	470K		
V8	6DS5	0Ω	270Ω	.1Ω	0Ω	†2150Ω	†1800Ω	0Ω		
V9	6CG7	†17K	56K	0Ω	0Ω	.1Ω	● ǂ1.6meg	● 2meg	0Ω	0Ω
V10	6CZ5	†150Ω	NC	● 1.2meg	0Ω	.1Ω	●1.2meg	0Ω	NC	†695Ω
V11	6CG7	†0Ω	● 670K	● 520K	0Ω	.1Ω	†68K	●70K	68Ω	0Ω
V12	6DQ6A	NC	0Ω	NC	†4700Ω	1meg	TP	.1Ω	100Ω	TOP CAP ǂ18.6Ω
V13	6AU4GTA	NC	NC	¶ 5meg	NC	†2.6meg	NC	0Ω	.1Ω	
V14	1G3GT/ 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †400Ω
V15	5U4GB	NC	¶	NC	31Ω	NC	33Ω	NC	¶	
V16	21CEP4	0Ω	22K	ǂ290K	†0Ω	NC	NC	● 210K	.1Ω	
V201	6BQ7A	†2100Ω	500K	600K	0Ω	.1Ω	600K	2.5meg	0Ω	0Ω
V202	6CQ8	†370Ω	100K	INF	.1Ω	0Ω	INF	0Ω	INF	INF
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

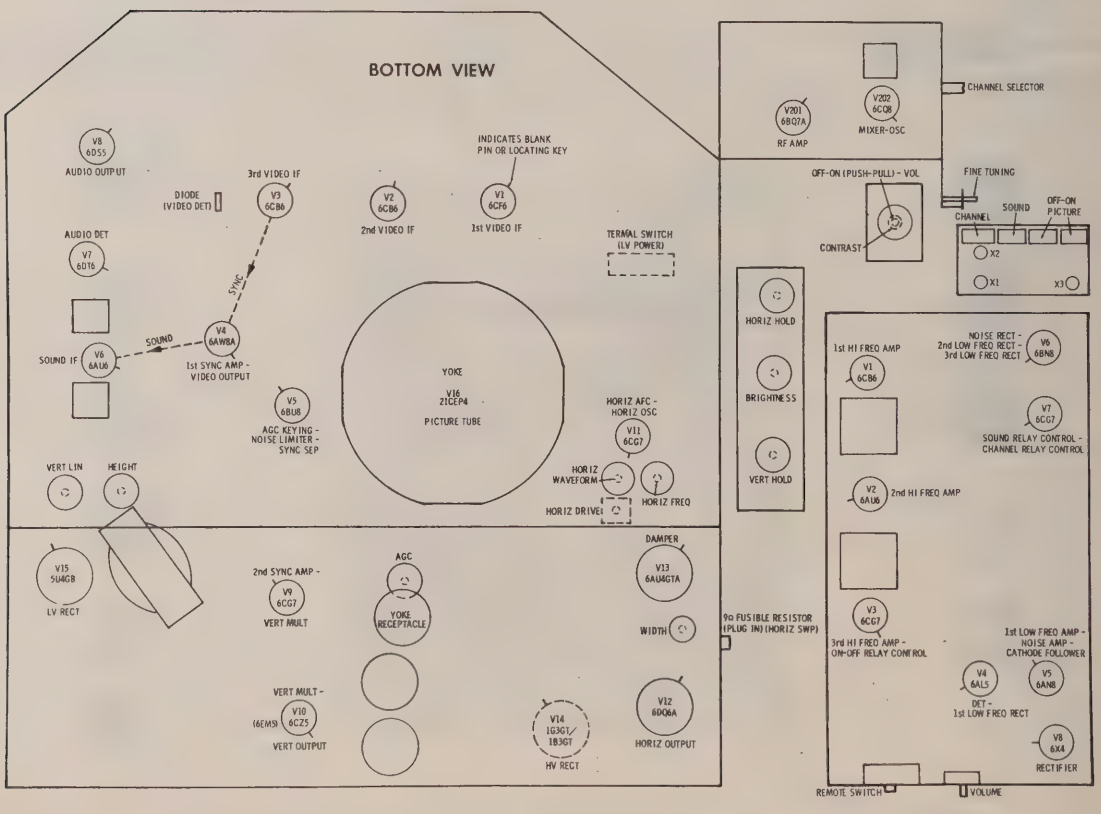
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 245V SOURCE.

ǂ MEASURED FROM PIN 3 OF V13. NC NO CONNECTION

†† MEASURED FROM PIN 7 OF V2. TP TIE POINT



TUBE PLACEMENT CHART

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

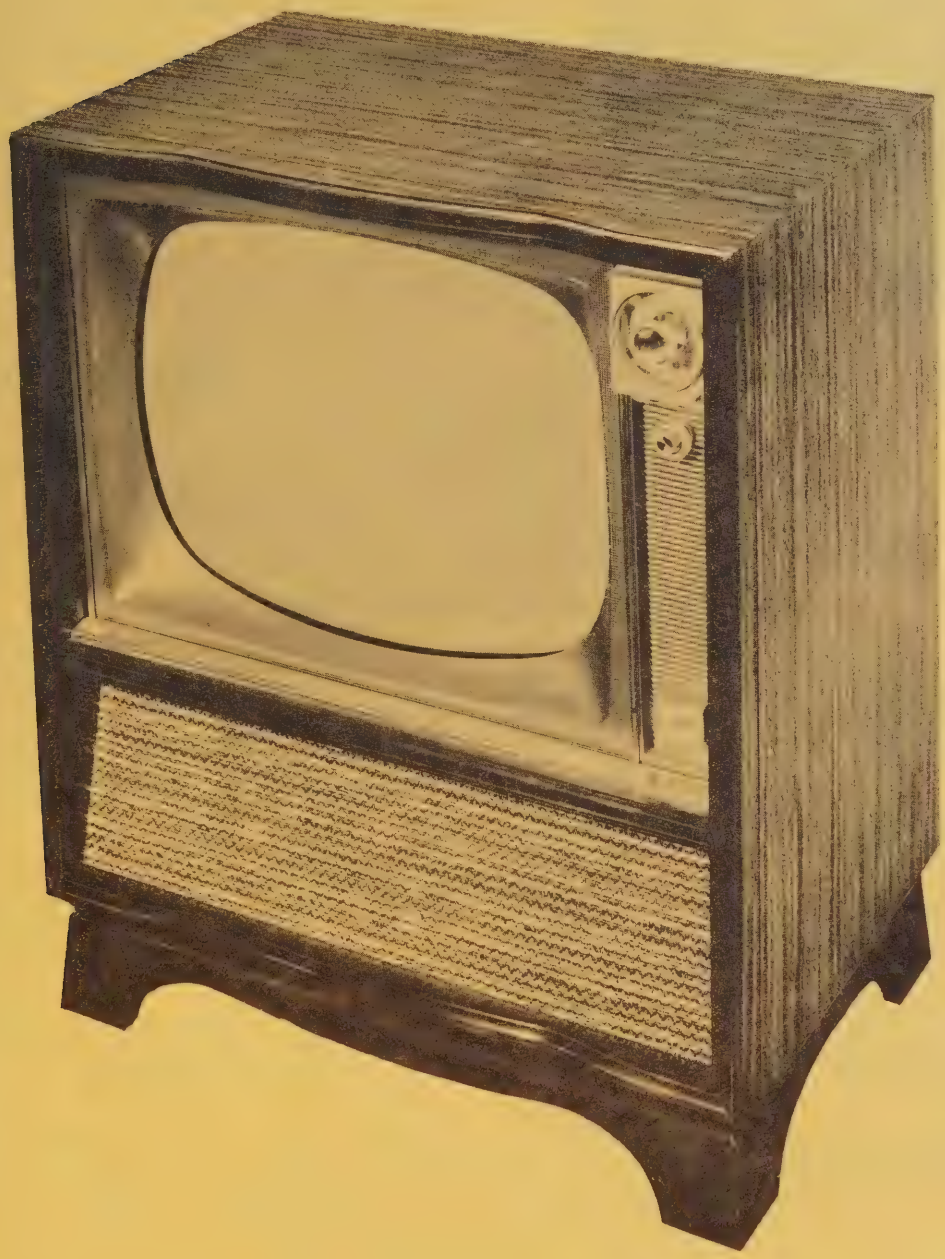
TRUETONE MODELS 2DC1940, 2DC1942, 2DC1944, 2DC2940, 2DC2942

TRUETONE MODELS 2DC1940, 2DC1942, 2DC1944, 2DC2940, 2DC2942

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



TRUETONE MODELS 2DC1940, 2DC1942, 2DC1944, 2DC2940, 2DC2942

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DATE 1-59

SET 428 FOLDER 2

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

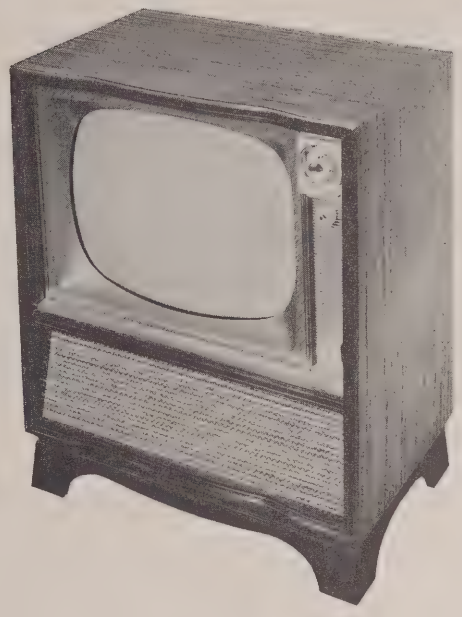
TRUETONE MODELS 2DC1940, 2DC1942, 2DC1944, 2DC2940, 2DC2942

TRUETONE MODELS 2DC1940, 2DC1942, 2DC1944, 2DC2940, 2DC2942

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type knobs from the front and channel indicator panel.
2. Remove 5 wood and 1 metal screw holding rear cover.
3. Remove picture tube socket, yoke plug, HV and speaker leads.
4. Loosen 2 wood screws and remove antenna terminal board.
5. Remove 1 wood screw holding chassis support bracket.
6. Remove 2 wood screws holding chassis at top.
7. Remove 4 bottom chassis bolts.
8. Partially remove chassis from rear of cabinet. Remove pilot light. Remove chassis.



TRADE NAME	Truetone	MODELS 2DC1940A, 2DC1941A, 2DC1942A, 2DC1943A, 2DC1944A, 2DC1945A, 2DC2940A, 2DC2941A, 2DC2942A, 2DC2943A
SUPPLIER	Western Auto Supply Co., 2107 Grand Avenue, Kansas City, Mo.	
TUBES	Eighteen VHF, Nineteen UHF-VHF	
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 180 Watts, 1.7 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Dial Indicator panel by pulling outward. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 5 wood screws holding the metal trim strip at the top edge of the Safety Glass. Tilt glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. Range
Observe the picture and advance the Range control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
Adjust the Beam Alignment magnet on the neck of the Picture Tube for best focus.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Oscillator it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart.)

FUSE

One fuse is used for low voltage supply protection. (For location, see tube placement chart.) One fuse wire is used for filament protection.

FUSE DEVICE

A Thermal Switch is used for low voltage power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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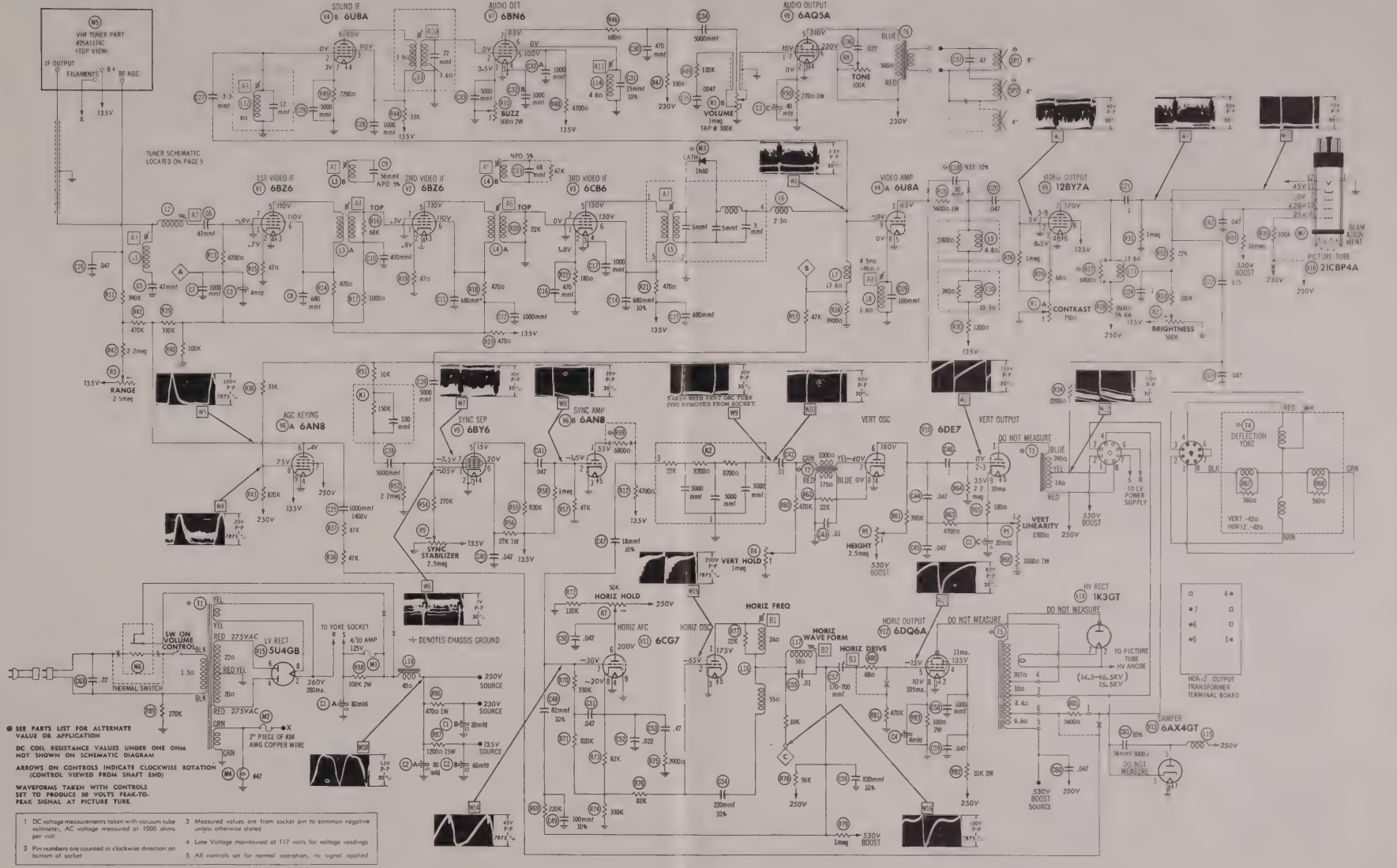
H876R

SET 428 FOLDER 2



- ❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
- DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
- ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
- WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt
2. Pin numbers are counted in clockwise direction on bottom of socket
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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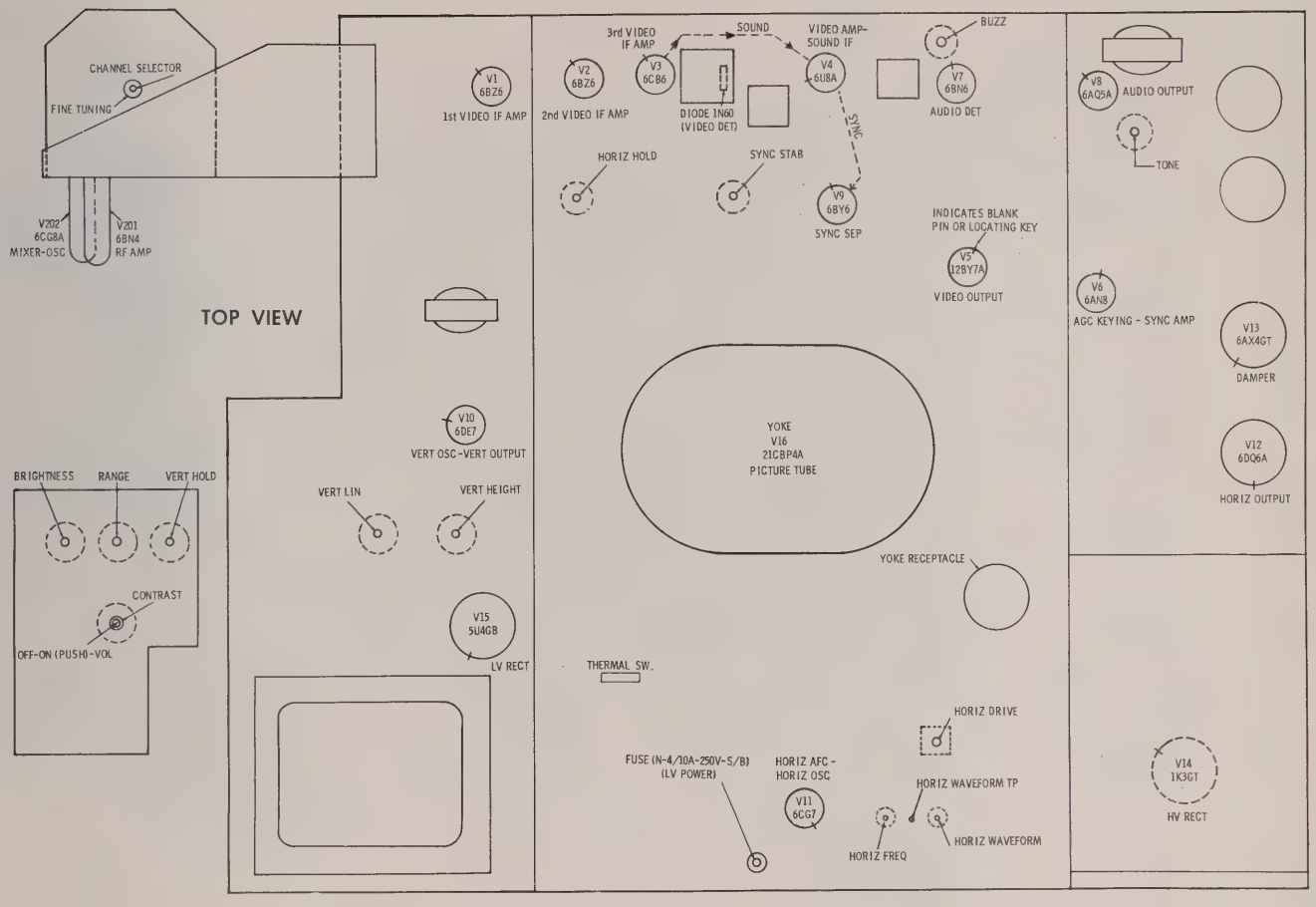
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

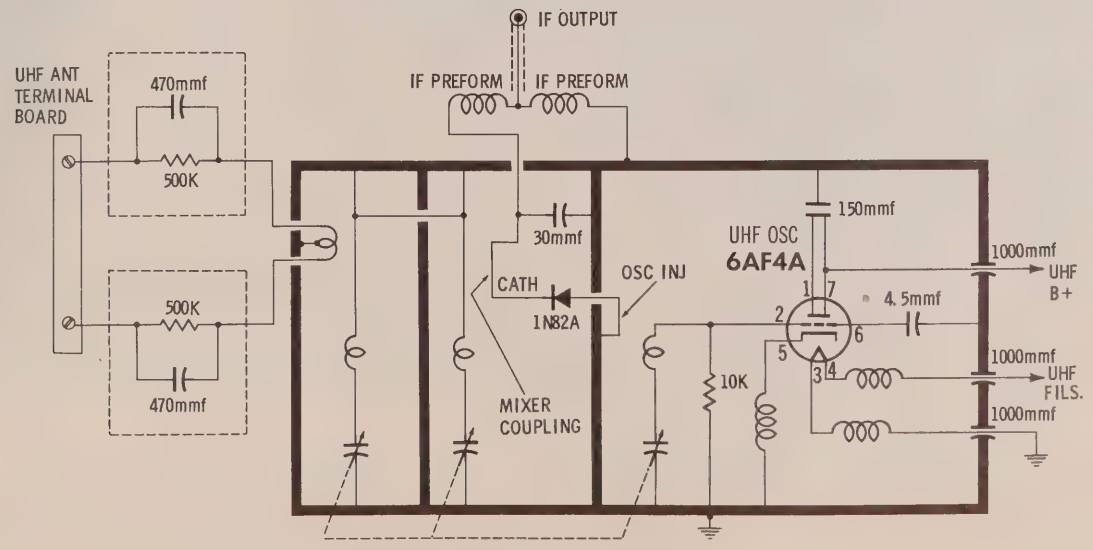
The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (B+), Thermal Switch (M6), V15

SWEEP FAILURE
No raster, has sound V11, V12, V13, V14, V16
No vertical deflection V10
Poor vert. linearity or foldover V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, V15
Vert. off freq. V10
Horiz. off freq. V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det)
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V5, V16
Has pic, no sound V4, V7, V8
Overloaded picture V6

SYNC FAILURE
No vert. sync V9, V6
No horiz. sync V9, V6, V11
No vert. or horiz. sync V9, V6

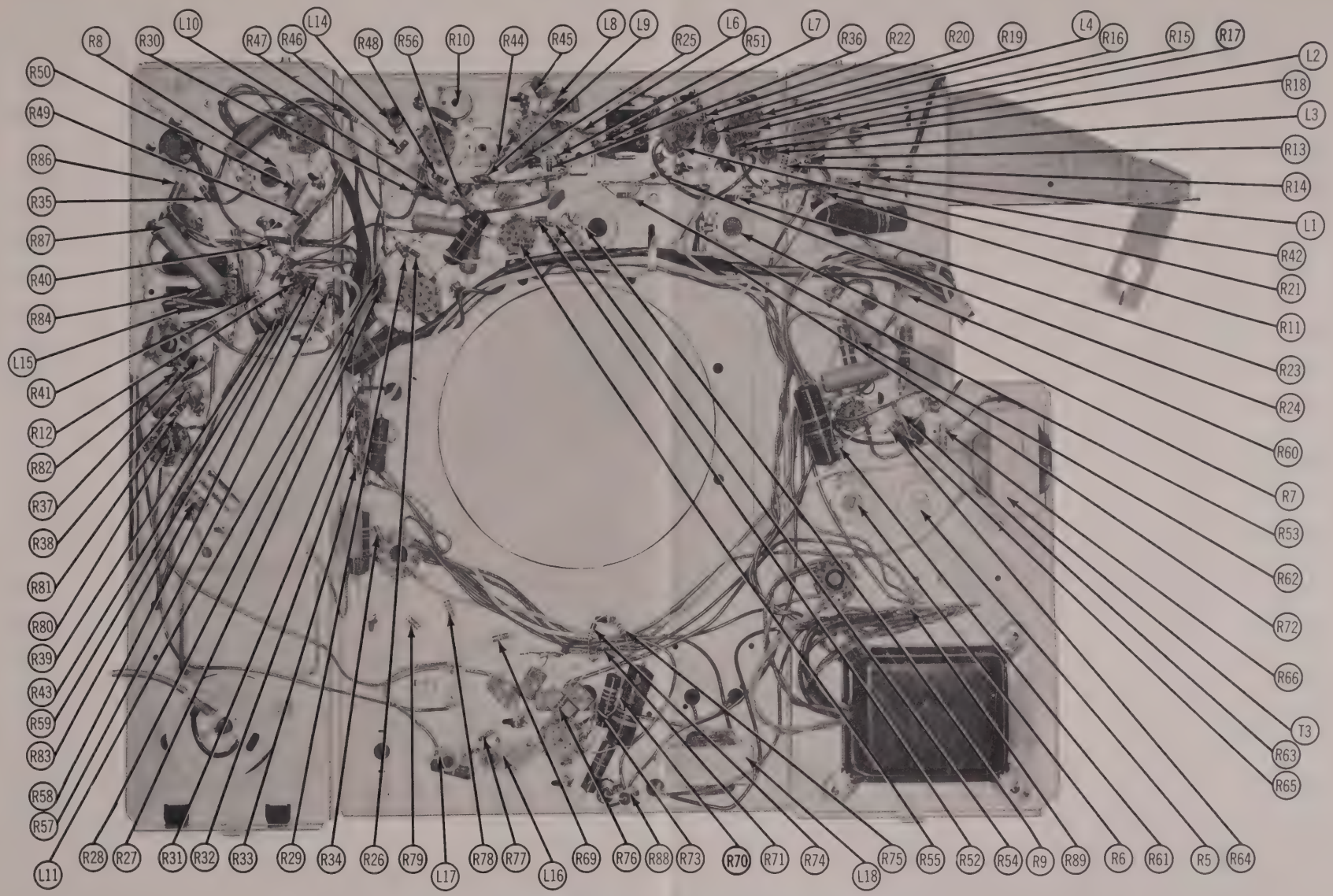


UHF TUNER 25A1159-2

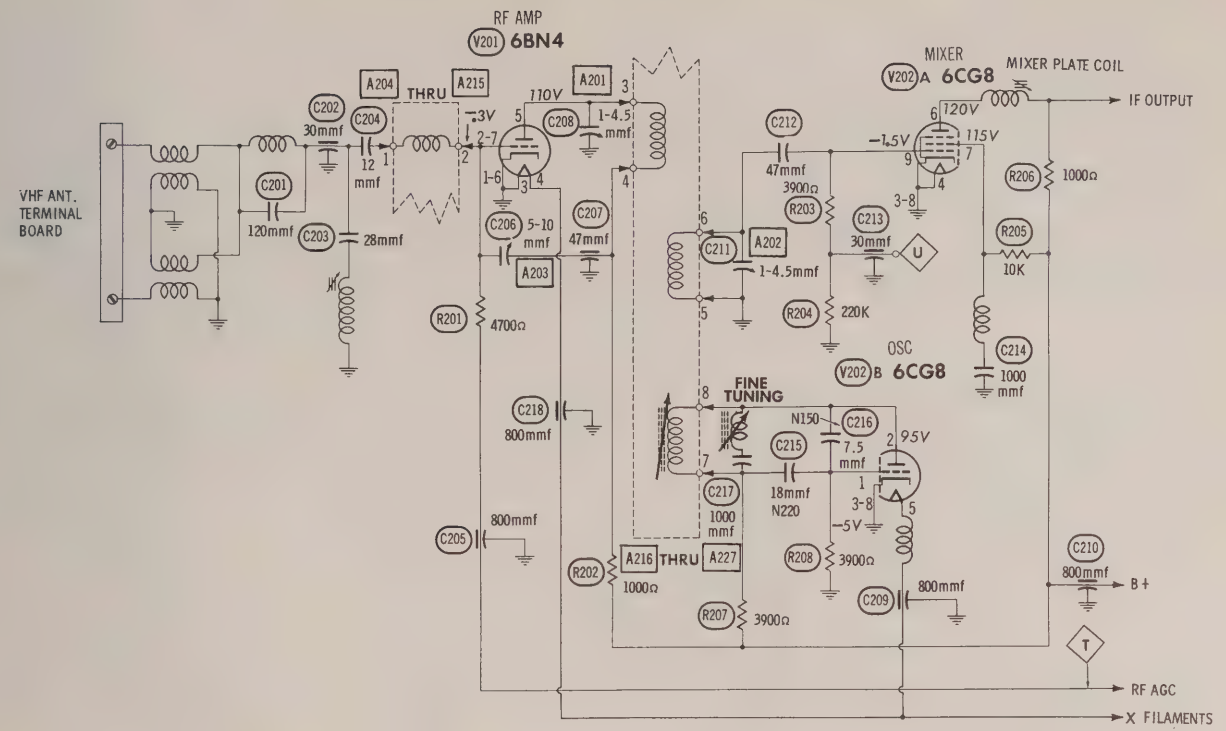
SET 428 FOLDER 2

TRUETONE MODELS 2DC1940, 2DC1942, 2DC1944, 2DC2940, 2DC2942

FOLDER 2



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



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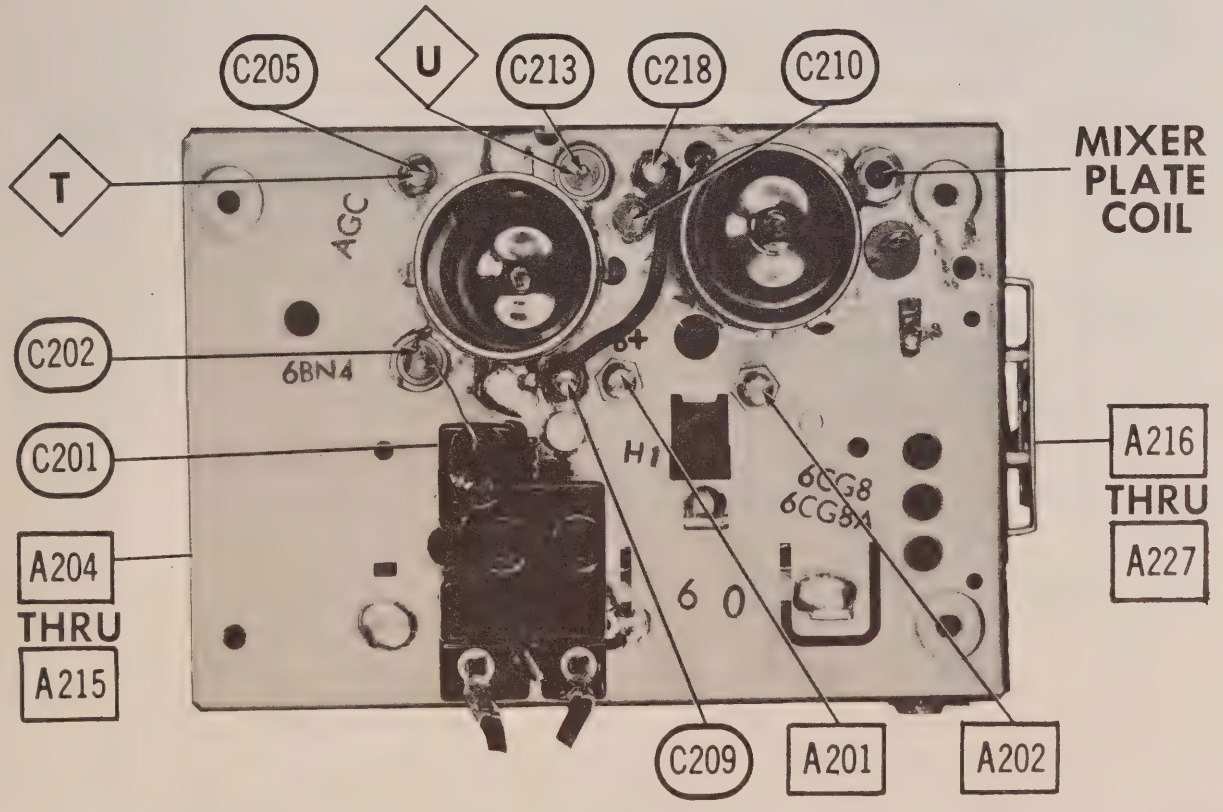
VHF TUNER 25A1174



TUNER 25A1174 - TOP VIEW

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201, A202	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201.
2.	"	"	"	"	"	Vert. Amp. thru detector (Fig. 202). to plate of 1st. IF tube. Low side to chassis.	A203	Adjust A203 to obtain MINIMUM response on the scope.
3.	"	"	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across video detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 203. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

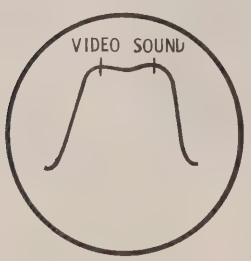


FIG.201

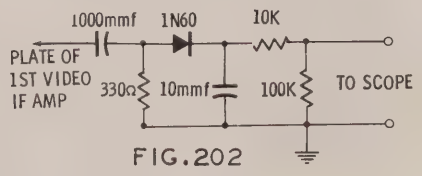


FIG.202

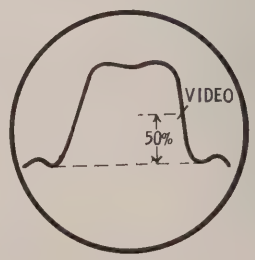


FIG.203

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: General Cement #8282, 8606, 8606L or 9295
Walsco #2543, 2544 or 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	47.25MC	Any non-interfering channel	Vert. Amp. thru demodulator probe (Fig. 1) to pin 5 (plate) of 6BZ6 (V1). Low side to chassis.	A1	Adjust to place marker in trap notch as in Fig. 2.
2.	"	"	"	41.25MC 45.75MC 47.25MC	"	"	A2, A3, & Mixer Plate Coil	Adjust for response similar to Fig. 2. Mixer Plate Coil and A2 affect the shape of the top. A3 is adjusted to position the 41.25MC marker. This adjustment must be made correctly or the sound rejection will not be correct. The 45.75MC marker must be exactly on peak.
3.	"	"	"	42.8MC	"	Vert. Amp. thru 10K to point (B). Low side to chassis. DC probe of VTVM thru 10K to same point. Common to chassis. (Across Video Det. load)	A4	Increase bias at point A to 4.5 volts. Adjust sweep output for -2 volts DC at point (B). Adjust A4 for maximum amplitude at marker.
4.	"	"	"	41.25MC	"	"	A5	Adjust for MINIMUM amplitude at marker.
5.	"	"	"	45.3MC	"	"	A6	Adjust for maximum gain at marker.
6.	"	"	"	44.0MC	"	"	A7	"
7.	"	"	"	41.25MC 42.4MC 42.8MC 44.0MC 44.5MC 45.3MC 45.75MC 47.25MC	"	"		Check for response similar to Fig. 3 with markers as shown. If necessary, retouch A2 thru A7 for desired response. A7 controls the symmetry of the top. A6 controls position of the 45.75MC marker. A4 controls position of the 42.4MC marker (this slug will seldom need retouching). CAUTION : The position of 44.5MC marker is very critical (98%).

4.5MC TRAP ALIGNMENT

Use 0-10 volts AC scale on VTVM.
Set Contrast fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.005mfd	High side to pin 9 (grid) of 6U8 (V4). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	RF probe to pin 11 (cathode) of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV signal and reduce signal level at the antenna terminals, by use of an attenuator or similar device, until a hiss similar to super-regeneration is heard in the sound.
Adjust A9, A10 and A11 for maximum undistorted sound.
Adjust the Buzz control (R10) for MINIMUM buzz.

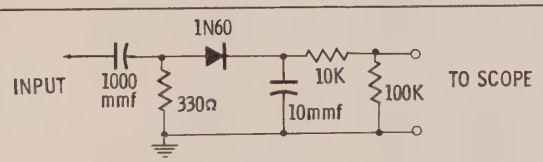


FIG. 1

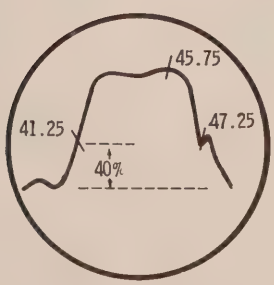


FIG. 2

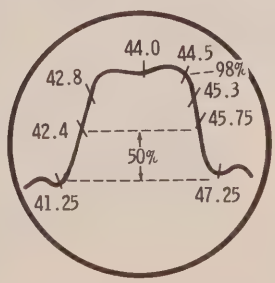


FIG. 3

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp.	6BZ6	
V2	2nd Video IF Amp.	6BZ6	
V3	3rd Video IF Amp	6CB6	
V4	Video Amp -Sound IF Amp	6U8A	
V5	Video Output	12BY7A	
V6	AGC Keying-Sync Amp.	6AN8	
V7	Audio Det	6BN6	
V8	Audio Output	6AQ5A	

ITEM No	USE	TYPE	NOTES
V9	Sync Sep	6BY8	
V10	Vert Osc -Vert Output	6DE7	
V11	Horiz. AFC-Horiz. Osc.	6CG7	
V12	Horiz. Output	6DQ6A	
V13	Damper	6AX4GT	
V14	HV Rect	1K3GT	
V15	LV Rect.	5U4GB	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	TRUETONE PART No	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V16	21CBP4A		21CBP4-A ①	21CBP4/ 21CBP4A ②	① "Silverama" ③ ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP	VOLT	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	≈80	300	45X428	AFH4-07	C0239	FP333.8 TT50X10	TMQ-157	T-525 MT-0510	TVLS-3573.7
B	≈20	300							
C	≈20	50							
C2A	≈80	300	45X439	AFH3-29-50	C0194 BR2035			Q-187.5	TVLS-3573.9
B	≈60	300							
C	≈40	50							
C3	4	50	45X418	PRS50V4	BBR4-50	TT50X5	TD-4-50	MT-0504	TVA-1402
C4	4	50	45X418	PRS50V4	BBR4-50	TT50X5	TD-4-50	MT-0504	TVA-1402

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
C5	47			SI 47	DS-470	L7SQ47	UC-5447	5GA-Q47		
C6	47			SI 47	DS-470	L7SQ47	UC-5447	5GA-Q47		
C7	1000			BPD-001	DD-103	BYA5D1	DC521	5HK-DI		
C8	680			BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68		
C9	56									NPO 5%
C10	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47		
C11	680			BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68		
C12	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-DI		
C13	68									NPO 5%
C14	680				D6-681	1R5T68		MB-368		10%
C15	680			BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68		
C16	470			BPD-00047	DD-471	BYA10T68	UC-5347	5GA-T47		
C17	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-DI		
C18	30		47X869							N33 10% ①
C19	100			SI 100	D6-101	L7ST1	UC-531	5GA-T1		
C20	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	47M-S47		
C21	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	47M-P1		
C22	.015	600	RCP10M6153M	P688N-015	DF-153	CUB6S15	GEM-6115	67M-S15		
C23	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	67M-S47		
C24	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	27M-P1		
C25	1000	1400		DAC-3	DCH0-102	HVK5K1A		BL-D10		
C26	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	27M-S47		
C27	3.3			NPO-SI 3.3	TCZ-3R3	CTA5V33C	ZT-5533	5TCCB-V33		
C28	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-DI		
C29	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C30	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47		
C31	15			NPO-SI 15	DD-150	L10Q15		5TCC-Q15		10%
C32A	1000			BPD-2X001	DD2-102	BYC6D1	DCD521	5HK-2D1		
B	1000									
C33	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C34	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C35	.0047	400		P488N-0047	D6-472	CUB6D47	GEM-6247	67M-D47		
C36	.022	600		P688N-022	DD-303	CUB6S22	GEM-6122	67M-D22		
C37	.47	200		P288N-47		CUB2P47	GEM-2047	27M-P47		
C38	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C39	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C40	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	47M-S47		
C41	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	47M-S47		
C42	.01	400		P488N-01	D6-103	CUB4S1	GEM-411	47M-S1		
C43	.01	400		P488N-01	D6-103	CUB4S1	GEM-411	47M-S1		
C44	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	67M-S47		
C45	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	67M-S47		
C46	.1	600		P688N-1	DF-103	CUB6P1	GEM-601	67M-P1		
C47	18		RCM20B180K	1469-000018	D6-180	22R5Q18		MS-418		10%
C48	82			1469-000082	D6-820	22R5Q82		MS-482		10%
C49	100			1469-0001	D6-101	22R5T1	MCB238	MS-31		10%
C50	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	47M-S47		
C51	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	27M-S47		
C52	.022	200		P288N-022	DD-303	CUB2S22	GEM-4122	27M-S22		
C53	.47	200		P288N-47		CUB2P47	GEM-2047	27M-P47		
C54	220			1469-00022	D6-221	5R5T22		MS-322		10%
C55	.01	400		P488N-01	D6-103	CUB4S1	GEM-411	47M-S1		
C56	820			1464-00082		1R5T82		MS-382		10%
C57	170-700		17A271							
C58	1000			BPD-001	DD-103	BYA5D1	DC521	5HK-DI		
C59	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	47M-S47		
C60	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	67M-S47		
C61	56	5000	47X755							10%
C62	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	67M-S47		
C63	.22	400		P488N-22		CUB4P22	GEM-4022	47M-P22		

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST ANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	750Ω	½	78X32					Contrast
B	1meg	1						Volume, Tap ④ 300K
C	Switch							Push-Push Type
R2A	500K	½	40X447	AB-59	A47-500K-S	QU-133	U50	Brightness
B	Shaft			AK-8 †	RS-3/16	NQ	DS-37	
R3A	2.5meg	½	40X448	AB-83	A47-2 5meg -S	QU-239	U255	Range
B	Shaft			AK-8 †	RS-3/16	NQ	DS-37	
R4A	1meg	½	40X446	AB-59	A47-1meg-S	QU-137	U54	Vert. Hold
B	Shaft			AK-8 †	RS-3/16	NQ	DS-37	
R5A	1500Ω	½	40X454	AB-8	B47-1500-S	BU-109	PTA15SL	Vert. Lin.
B	Shaft			AK-1	Not Req.	TM2	Not Req.	
R6A	2.5meg	½	40X453	AB-83	B47-2.5meg -S	BU-239	TA355L	Height
B	Shaft			AK-1	Not Req	TM2	Not Req.	
R7A	50K	½	40X449	AB-31	B47-50K-S	BU-123	PTA54L	Horiz. Hold
B	Shaft			AK-1	Not Req.	TM2	Not Req.	
R8A	100K	½	40X407	AB-60	B47-100K-S	BU-125	TA15L	Tone
B	Shaft			AK-1	Not Req.	TM2	Not Req.	
R9A	2.5meg	½	40X398	AB-83	B47-2.5meg -S	BU-239	PTA36L	Sync - Stab
B	Shaft			AK-19	Not Req.	TM2	Not Req.	
R10	500Ω	2(WW)	40X397		39-500		FL-500	Buzz

† Flat shaft flat as required.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R11	390K			
R12	4700Ω			
R13	4700Ω			
R14	470Ω			
R15	47Ω			
R16	68K			
R17	1000Ω			
R18	470Ω			
R19	47Ω			
R20	22K			
R21	470Ω			
R22	180Ω			
R23	470Ω			
R24	3900Ω			
R25	5600Ω	1		
R26	1meg			
R27	6800Ω			①
R28	36000 5%	4	43X331	
R29	68Ω			
R30	1200Ω			
R31	1meg			
R32	22K			
R33	100K			
R34	2300Ω			
R35	100K			
R36	33K			
R37	47K			
R38	47K			
R39	330K			
R40	100K			
R41	470K			
R42	2.2meg			
R43	820K			
R44	33K			
R45	2200Ω			
R46	680Ω			
R47	330K			
R48	4700Ω			
R49	120K			
R50	270Ω	1		

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R51	10K			
R52	2.2meg			
R53	47K			
R54	270K			
R55	330K			
R56	27K	1		
R57	47K			
R58	1meg			
R59	6800Ω			①
R60	470K			
R61	390K			
R62	22K			
R63	4700Ω			
R64	2.2meg			
R65	180Ω			
R66	1000Ω	1		
R67	560Ω			
R68	560Ω			
R69	220K			
R70	330K			
R71	680K			
R72	120K			
R73	82K			
R74	330K			
R75	3900Ω			
R76	82K			
R77	22K			
R78	56K			
R79	1meg			
R80	68Ω			
R81	470K			
R82	10K	2		
R83	100Ω	2		
R84	10meg			
R85	5600Ω			
R86	470Ω	1		
R87	1200Ω	15		
R88	100K	2	D8S104	
R89	270K		B84274	

① Not used in some versions.

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA						NOTES
		TRUETONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.		
L1	39MC Trap	9A2369			4202			
L2	1st. Video IF	9A2365	17-4534	TV-131	4202	RF-4		
L3A	2nd. Video IF	9A2363	17-4536		6222			
B	47.25MC Trap							
L4A	3rd. Video IF	9A2414	17-4535		6321			
B	41.25MC Trap							
L5	4th. Video IF	9A2370						Includes Caps & 30 Microhenry Choke
L6	Resonant Choke	9A2375						30 Microhenries
L7	Shunt Peaking Coil	36A3	19-3180	TV-184	6180	VP-5		190 Microhenries, Note 1
L8	4.5MC Trap	9A2413	17-3400	TV-151		RF-3		
L9	Shunt Peaking Coil	36A42						30 Microhenries, wound on 1800Ω resistor
L10	Shunt Peaking Coil	36A41	19-3100 *	TV-194 *	6112 *			100 Microhenries, wound on 390Ω resistor
L11	Shunt Peaking Coil	36A2	19-3180	TV-184	6180	VP-5		190 Microhenries
L12	1st. Sound IF	9A2434	17-1026					
L13	2nd. Sound IF	9A2366	17-3495	TV-113	6203	RF-2		
L14	Quadrature Coil	9A2357	20-1005	TV-121	1480			
L15	RF Choke	9A2380	19-1001	BC-562	4604			1.5 Microhenries

* Parallel with 390Ω resistor.

Note 1. Alternate Part #36A44.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordorson PART No.	
L16	79Ω		9A2371		TV-165	6311 *		HS-7	Horiz. Freq Tapped ⑤ 55Ω
L17	58Ω		9A2372			6313		HS-5 *	Horiz. Waveform * Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~(↓)	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
L18	280A	40Ω	1 Hy	52X95-10	CS037 ①	C-2991 ①		C-2326 ①	28C43 ①	C-27X

① Drill new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No	Triad PART No
T1	117V ②1.7A	600VCT ③ .380A	5V ③ 3A	53X389A 53X354 ③		P-2830 P-2830		P-8332 ① P-8332 ①	26R88 26R88	R-84BC R-84BC
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ④ 8.5A									

① Parallel and phase 6.3V windings. ② Alternate Part Number.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							
		TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc	64X19-A	B8702	A-3003	V405		A-8125	26A03	A-97X
	Alt. Vert. Osc.	64X9							
T3	Vert. Output	51X86-2B	Z1900 ①②	A-3038 ①③	V307 ①③		VO-100 ③	26S73 ③	A-118X ③
	Alt. Vert. Output	51X86-2							
T4	Yoke-Horiz. (34MH) (90°)-Vert (39MH)	C9A2403 ③ ⑤	DF807 ③ ⑤	MDF-92 ③ ⑤	Y90P19/43 ③ ⑤		DY-16A ④ ⑤	Y-45 ④ ⑤	Y-45 & NW21 ⑤
	Alt. Yoke	9A2403							
	Rear Cover & Centering Device	2A435							YC-1 & CL-1
	Yoke Clamp	30X611							
T5	Horiz. Output	53X362C	FB486 ③ * ⑧	HVO-157 ③ * ⑧	X176		EFH88 ③ ⑧ * ⑧	HO-26 ③ * ⑧	FLY-143 ③ * ⑧	D-123 * ⑧
	Alt. Horiz. Output	53X362							

① Connect as autoformer.
② Use 9 : 1 turns ratio.
③ Drill new mounting hole(s).
④ Use original rear cover & centering device. Use original damping network.
⑤ Connect same as original.
⑥ Trim 1 1/2" from top of terminal board.
⑧ This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	4	5	5		5	8	5	P
	7	2	2		2	3	2	3
	6	6	6		6	2	6	2
	5	1	1		1	1	1	1
Special Notes →		⑦	⑦		⑦		⑦	

⑦ Remove one turn from filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No	Merit PART No.	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No	
T6	4700Ω	3-4Ω	51X176	Z1005	A-2930	AU-604 ①	A-3877	26S49 ①	S-5Z ①	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP	TRUETONE PART No	CHAM PART No.	
SP1	8"	PM	3-4Ω	12A548 ①	6A21	① Used in Console Models.
	4" x 8"	PM	3-4Ω	12A551 ②	6SA1	② Used in Table Models.
SP2	4"	PM	3-4Ω	21A547 ③	4A07	③ Alternate 4" speaker used in Console Models
	4"	PM	3-4Ω	12A543 ③		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No	REPLACEMENT DATA	
K1	Sync Coupling Circuit	330mmf, 150K	76X15	Sprague	PRC-5
K2	Vert. Integrator	2000mmf, 5000mmf, 5000mmf, 33K, 82000Ω, 8200Ω	76X7	Aerovox Centralab Cornell-Dubilier Sprague	PA-110 PC-104 1S7MD V1/V3

TRUETONE MODELS 2DC1940, 2DC1942, 2DC1944, 2DC2940, 2DC2942

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TRUETONE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	N	4/10A 125V S/B	16X162	16X163	333.400 (N 4/10A-125V-S/B)	346009	N 4/10	HN 3/10 to 1/2
M2	#24 AWG Copper Wire 2" Length							

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		TRUETONE PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60 *		1N60	1N295	Video Detector (Pigtail) * Some versions may use a CK706A in this application.

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Lamp		#47
M5	Tuner	25A1174	VHF
	Tuner	25A1159-2	UHF
M6	Thermal Switch	2A495	
M7	Magnet	2A476	Beam Alignment

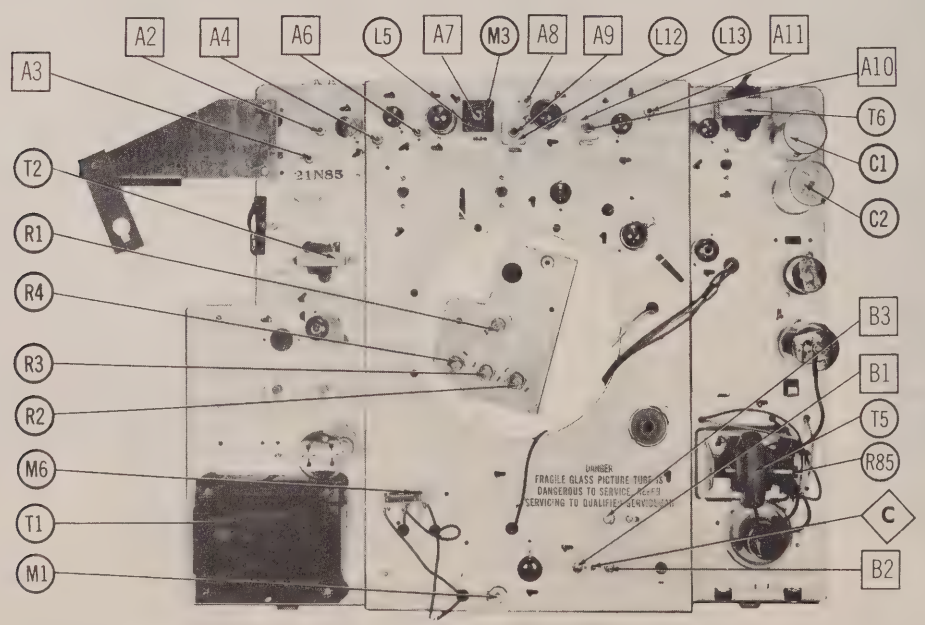
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	17X199-1	
Mask	S-38A670	Gold, Mahogany Table Models
Mask	S-38A673	Silver, Oak Table Models
Mask	4X1408-1	Gold, Console Models
Mask	4X1408-2	Silver, Console Models
Knob	10A943-1	Channel Selector
Knob	10A933-1	Contrast
Knob	10A932-1	Volume
Knob	10A944-1	Secondary Controls
Knob	10A942-1	Channel Indicator
Assembly	26A591	Dial Scale, Escutcheon, Fine Tuning knob, Oak Models
Assembly	26A593	Dial Scale, Escutcheon, Fine Tuning knob, Mahogany and Fruitwood Models

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



CHASSIS TOP VIEW

TUNER PARTS LIST AND DESCRIPTIONS

25A1174

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

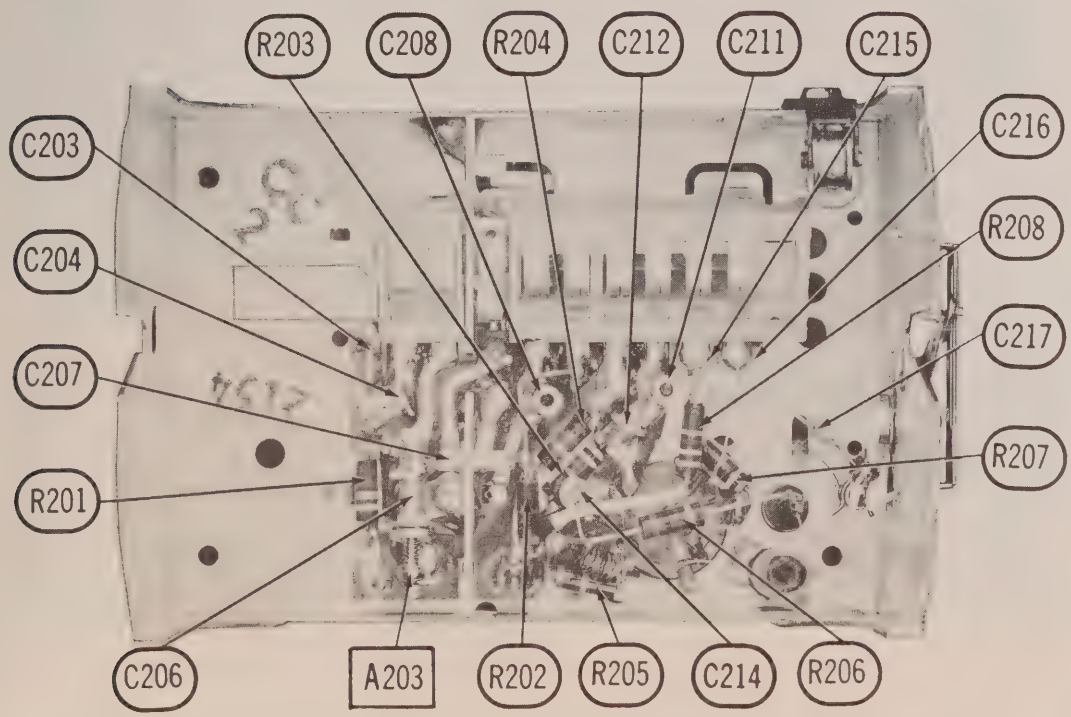
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C201	120			BPD-00012	DD-121	L10T12	UC-5312	5GA-T12	
C202	30								
C203	28								
C204	12								
C205	800								
C206	5-10								
C207	47								
C208	1-4.5								
C209	800								
C210	800								
C211	1-4.5								
C212	47								
C213	30								
C214	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C215	18								N220
C216	7.5								N150
C217	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C218	800								

RESISTORS

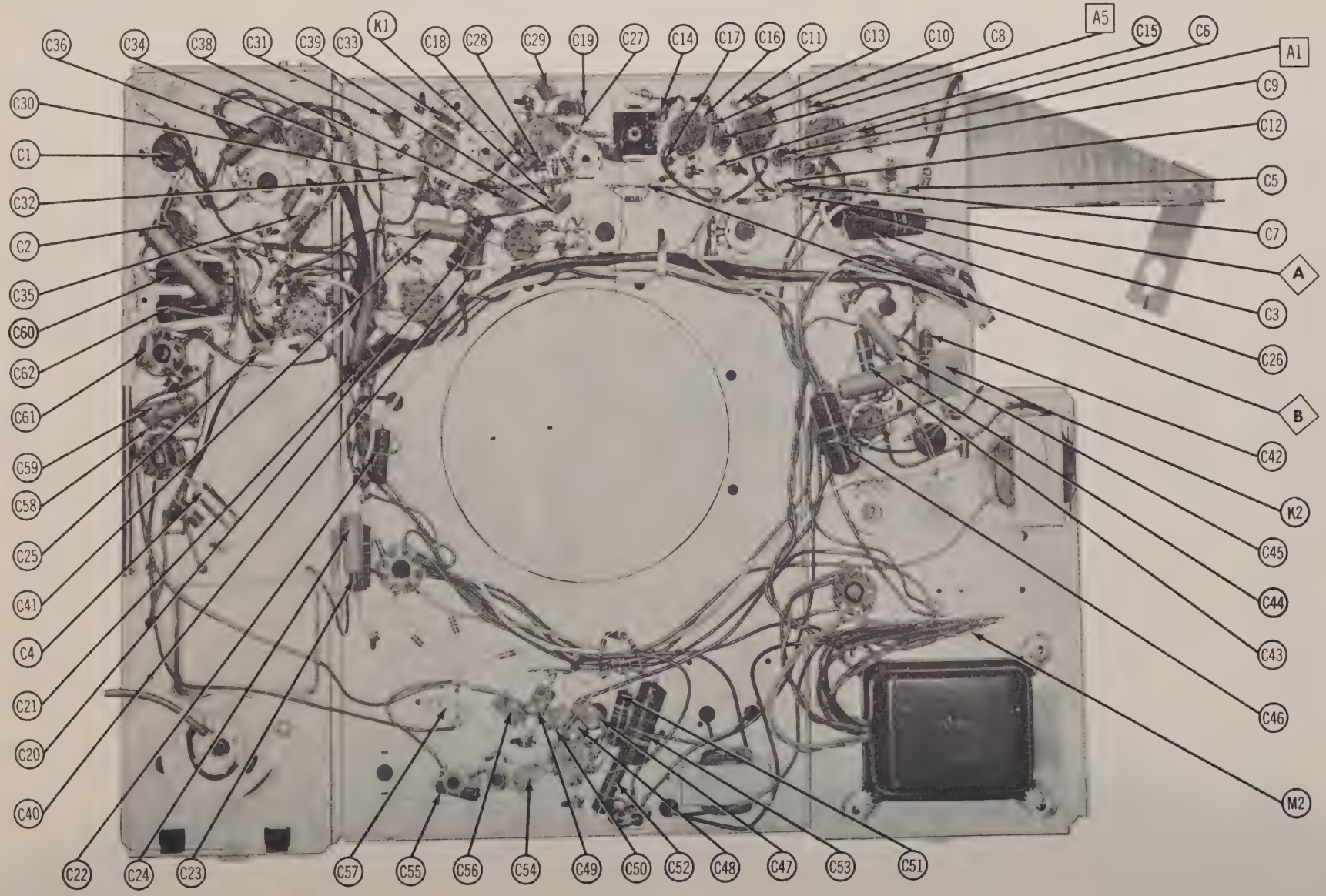
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	TRUETONE PART No.	NOTES
R201	4700Ω			
R202	1000Ω			
R203	3900Ω			
R204	220K			

ITEM No.	RATING OHMS	RATING WATT	TRUETONE PART No.	NOTES
R205	10K			
R206	1000Ω			
R207	3900Ω			
R208	3900Ω			



TUNER 25A1174 BOTTOM VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	100K	47Ω	.1Ω	0Ω	†2100Ω	†2100Ω	0Ω		
V2	6BZ6	100K	47Ω	.1Ω	0Ω	†2100Ω	†2100Ω	0Ω		
V3	6CB6	.1Ω	180Ω	0Ω	.1Ω	†1700Ω	†1700Ω	0Ω		
V4	6U8A	†8000Ω	6Ω	†34K	.1Ω	0Ω	†34K	2200Ω	1.6Ω	3900Ω
V5	12BY7A	• 310Ω	1meg	0Ω	0Ω	0Ω	.1Ω	†3600Ω	†1200Ω	0Ω
V6	6AN8	†12K	47K	0Ω	0Ω	.1Ω	360K	†0Ω	†35K	†1200Ω
V7	6BN6	•330Ω	3.6Ω	0Ω	.1Ω	†5900Ω	4.6Ω	†330K		
V8	6AQ5A	0Ω	270Ω	0Ω	.1Ω	†970Ω	†470Ω	0Ω		
V9	6BY6	• 500K	0Ω	0Ω	.1Ω	†820K	†28K	2.2meg		
V10	6DE7	†400Ω	2.2meg	2.2meg	0Ω	.1Ω	• ‡1.6meg	• 850K	175Ω	•1700Ω
V11	6CG7	†56K	310K	0Ω	0Ω	.1Ω	•†23K	1.5meg	310K	0Ω
V12	6DQ6A	TP	.1Ω	NC	†10K	470K	TP	0Ω	100Ω	TOP CAP ‡10Ω
V13	6AX4GT	TP	NC	¶1.1meg	NC	†.1Ω	TP	.1Ω	0Ω	
V14	1K3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡317Ω
V15	5U4GB	NC	¶	NC	20Ω	NC	22Ω	NC	¶	
V16	21CBP4A	0Ω	1meg	Pin 6 †100K	Pin 10 ‡10meg	Pin 11 • 180K	Pin 12 .1Ω			
V201	6BN4	0Ω	1.1Meg	0Ω	.1Ω	†2200Ω	0Ω	1.1meg		
V202	6CG8	3900Ω	†5100Ω	0Ω	0Ω	.1Ω	†2200Ω	†11K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

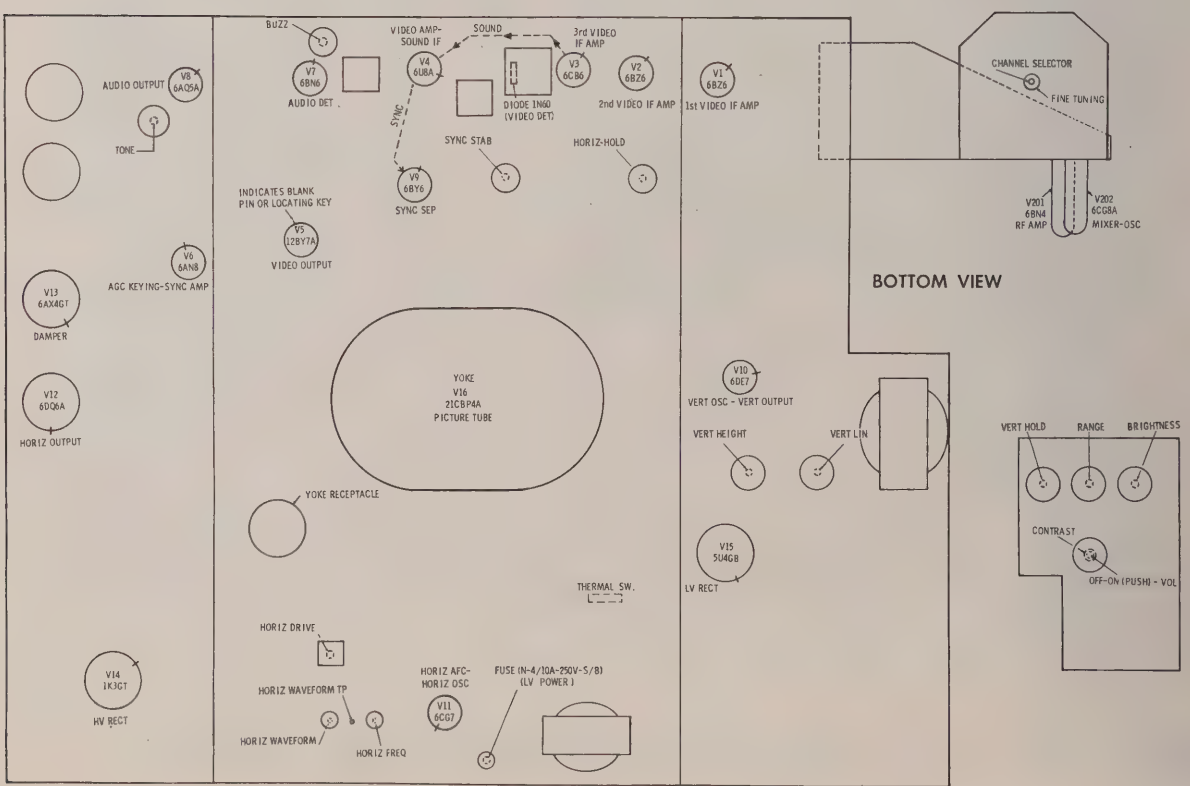
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR

• CONNECTED IN THE ASSOCIATED CIRCUIT.

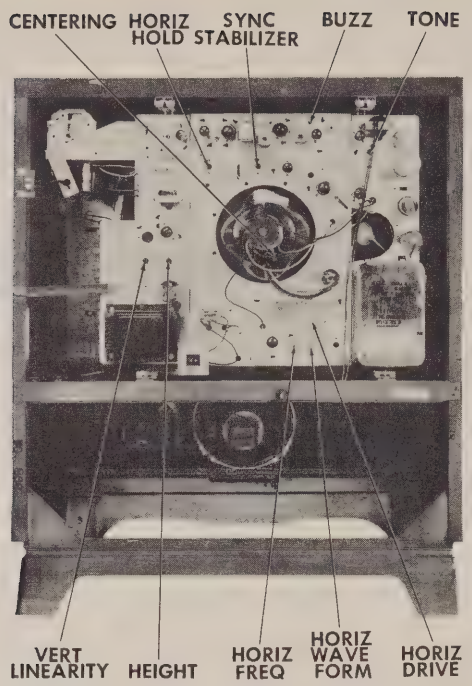
THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 250V SOURCE. NC NO CONNECTION.

‡ MEASURED FROM PIN 3 OF V13. TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested alignment tools: General Cement #8279, 9050L or 9150
Walsco #2521 or 2524

Turn the set on and tune in a TV station, preferably with a test pattern.

Turn the Horizontal Hold control to the center of its range.

Connect a clip lead across the Horizontal Waveform coil (L17). Adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally.

Remove the clip lead from L17. Connect the vertical amplifier of a scope thru a low capacity probe to point ◇. Low side to chassis.

Adjust the Horizontal Waveform slug (B2) for equal amplitudes of the round and sharp peaks of the waveform as shown in Fig.4. While making this adjustment, keep the picture in sync with the Horizontal Hold control and B1.

Turn the Horizontal Drive trimmer (B3) clockwise as far as possible without the presence of vertical white lines or compression near the center of the raster.

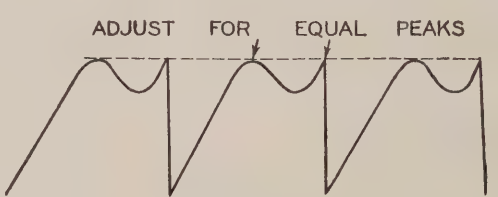
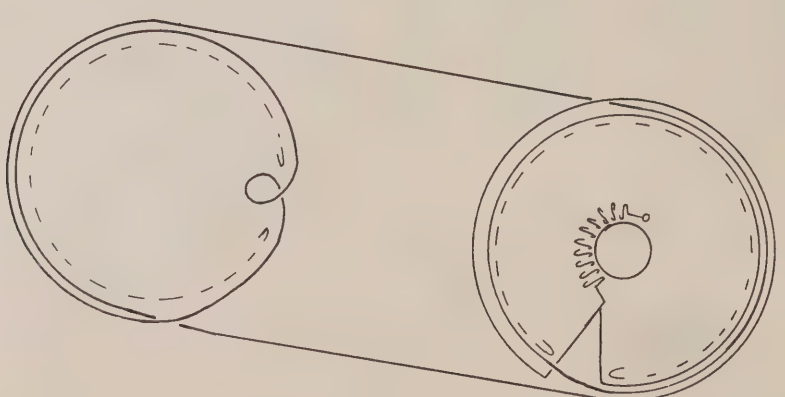


FIG. 4



FINE TUNING DRIVE CORD STRINGING

PHOTOFACT* Folder
*TRADE MARK
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

AIRLINE MODELS GEN-1628A, GEN-1670A

AIRLINE MODELS
GEN-1628A, GEN-1670A

MODEL GEN-1670A

AIRLINE MODELS
GEN-1628A, GEN-1670A

TRADE NAME	Airline Models GEN-1628A, GEN-1670A
MANUFACTURER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	AC Operated AM Receiver With Electric Clock (Not Used With GEN-1628A)
TUBES	Four
POWER SUPPLY	105 - 120 Volts AC - 60 Cycles
RATING	26 Watts, .275 Amp. @117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	540 - 1640KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-.

Suggested alignment tools:

A1, A2..... General Cement #5009, 8195, 8274, 8275, 8728, 8987
Walsco #2531

A3, A4..... General Cement #5000, 5003, 5014, 5015, 5016, 8276, 8290
Walsco #2512, 2515, 2522, 2523, 2525, 2537

A5..... General Cement #8606, 8606L, 8282, 9295
Walsco #2526, 2543, 2544, 2545

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd	Highside to antenna stator lug of tuning gang. Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.	100mmf	Highside to antenna hank wire. Low side to B -	1640KC	"	"	A3, A4	"
3.	"	"	600KC	Tune for 600KC signal	"	A5	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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H866

SET 428 FOLDER 3

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AU6	
V2	Det.-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V3	Output	50C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	E3225	PRS150V804 020	BBRT84215	TCT3117	TDLT-7	FMT-339	TVA-3455
B	40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	8					LT6V8		5GA-V8	N1500 5%
C3	39								
C4	.01	600		P688N-01	D6-103	CUB6S1	GEM-611	5TM-S1	
C5	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C6	.01	600		P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	E2529	B-70	A47-1meg-Z	Q13-137	U53	Volume Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

Note 1. Part #E2528 (with switch) used in Model GEN-1628A.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

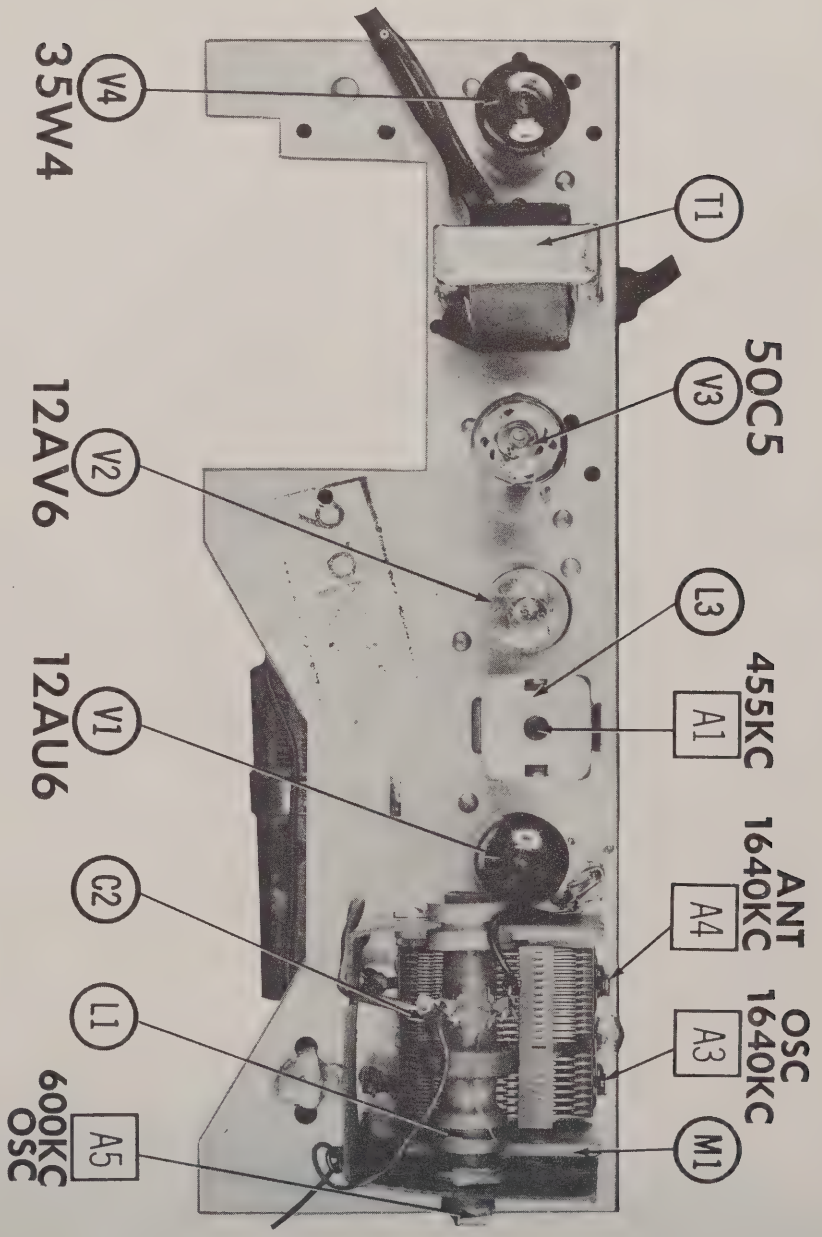
ITEM No.	RATING		AIRLINE PART No.	NOTES
	OHMS	WATT		
R2	2.2meg			
R3	150Ω			
R4	1500Ω	1		

ITEM No.	RATING		AIRLINE PART No.	NOTES
	OHMS	WATT		
R5	47Ω	2		
R6	22Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		AIRLINE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Coil	E6137					
L2	Osc. Coil	E6136					
L3	IF Trans.	E6220					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2500Ω	3-4Ω	E1121	Z1101 ①	A-3025 ①	AU-605①	A-3332①	24S53 ①	S-12X①	① Rotate 90° and use original channel frame.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	E1035	4A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA	
K1	Audio Circuit	100mmf, 270mmf, 2000mmf, 5000mmf. 470K, 470K, 10meg.	E3015	Aerovox Centralab Cornell-Dubilier Sprague	PA-113-1 PC-150 116TM1 DT-1

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M1	Tuning Cap.	E3523	2 Gang, Ant. 11-349mmf, Osc. 13-114mmf
M2	Clock	E137	Includes Hands, Model GEN-1670A

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

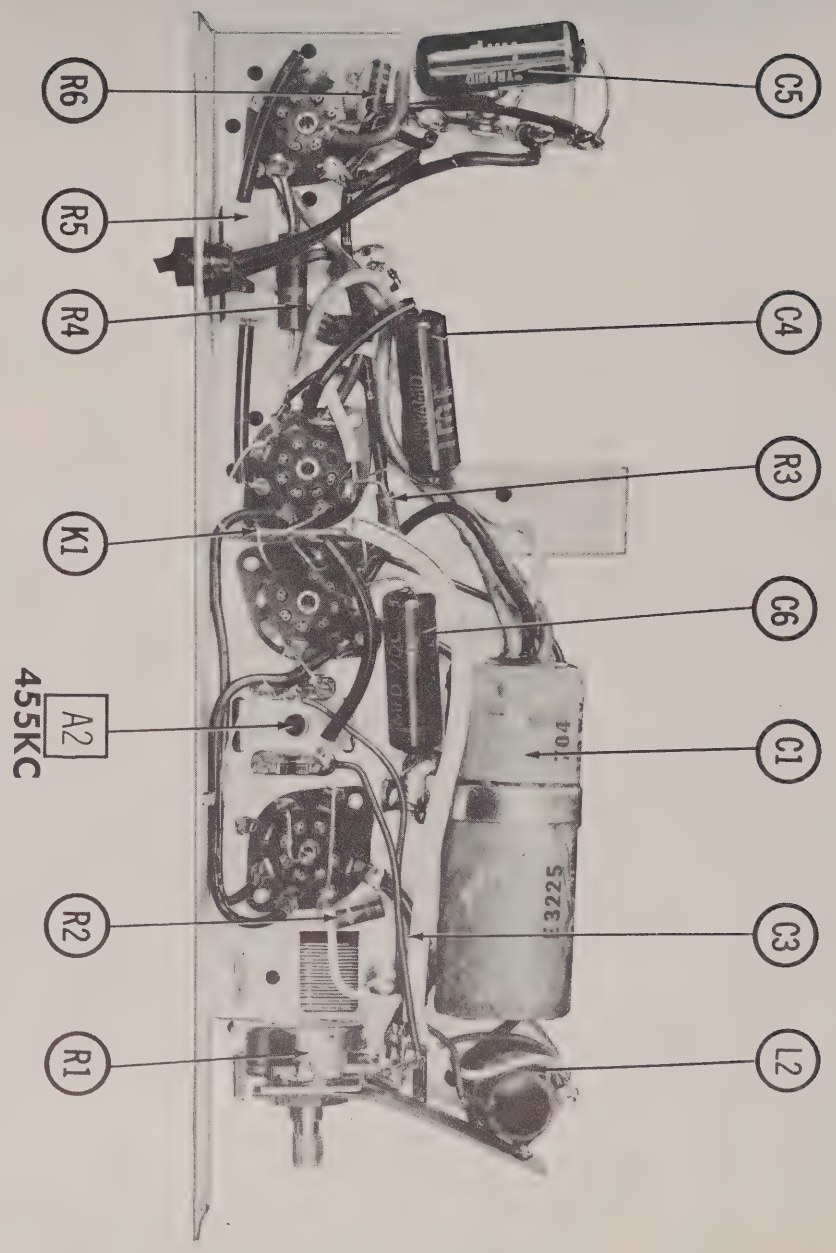
NAME	PART NO.	DESCRIPTION
Knob	E5080	Tuning
Knob	E5079	Volume
Knob	E5064	Clock, Model GEN-1670A
Cabinet	E7045A	Model GEN-1670A
Cabinet	E7045	Model GEN-1628A
Window	E5078	Clock, Model GEN-1670A

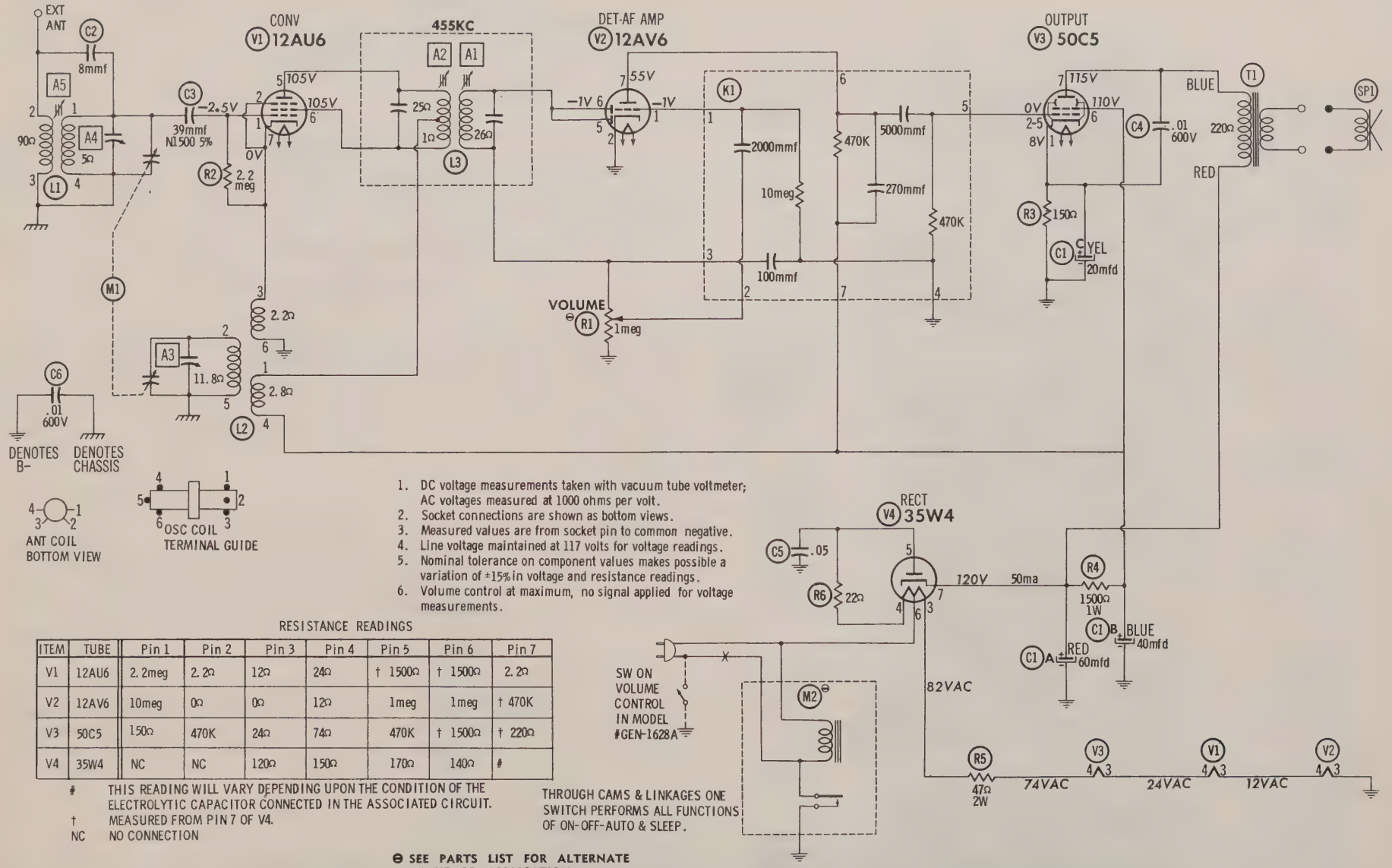
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	2.2meg	2.2Ω	12Ω	24Ω	† 1500Ω	† 1500Ω	2.2Ω
V2	12AV6	10meg	0Ω	0Ω	12Ω	1meg	1meg	† 470K
V3	50C5	150Ω	470K	24Ω	74Ω	470K	† 1500Ω	† 220Ω
V4	35W4	NC	NC	120Ω	150Ω	170Ω	140Ω	#

\# THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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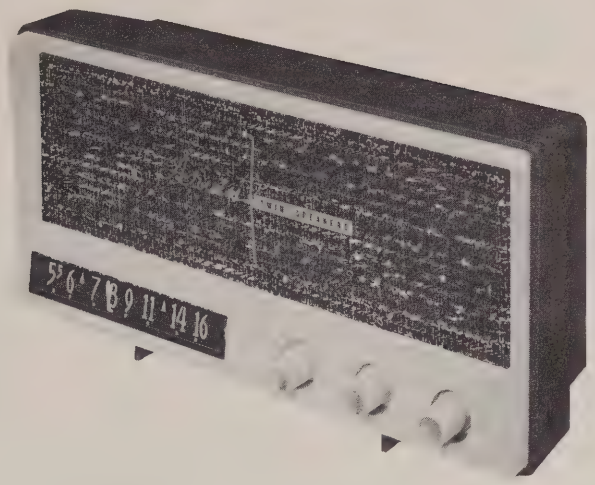
AIRLINE MODELS GEN-1628A, GEN-1670A

PHOTOFACT* Folder with CIRCUITRACE*

ARVIN MODEL 2585 (Ch. 1.45000)



TRADE NAME	Arvin Model 2585 (Ch. 1.45000)
MANUFACTURER	Arvin Industries, Columbus, Indiana
TYPE SET	AC-DC Operated AM Receiver
TUBES	Five
POWER SUPPLY	110-120 Volts AC-DC — RATING 27 Watts, .285 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, close tuning gang and move pointer to coincide with calibration mark at left of dial.
Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Suggested alignment tools: A1, A2, A3, A4, A6 ..... General Cement #8606, 8606L
Walsco #2543, 2544
A5, A7 ..... General Cement #5000, 9291, 8821, 8607, 8609, 9105, 9106, 8290, 8276, 5008, 5004, 9294, 5003, 5066
Walsco #2523, 2538, 2522, 2537, 2512, 2515, 2525

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to antenna stator lug of tuning gang. Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.		Loop	1670KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	600KC	600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output while rocking tuning gang. Repeat steps 2 and 3.
4.		"	1400KC	Tune to 1400KC signal	"	A7	Fashion loop of several turns of wire and raidate signal into loop of receiver. Adjust for maximum output.
	If receiver fails to track properly the next steps should be followed:						
5.		Loop	1000KC	Tune to 1000KC signal	Across voice coil		Adjust for maximum output by bending second set of segments of antenna section of tuning gang.
6.		"	600KC	Tune to 600KC signal	"		Adjust for maximum output by bending third set of segments of antenna section of tuning gang. Repeat steps 2 thru 6.

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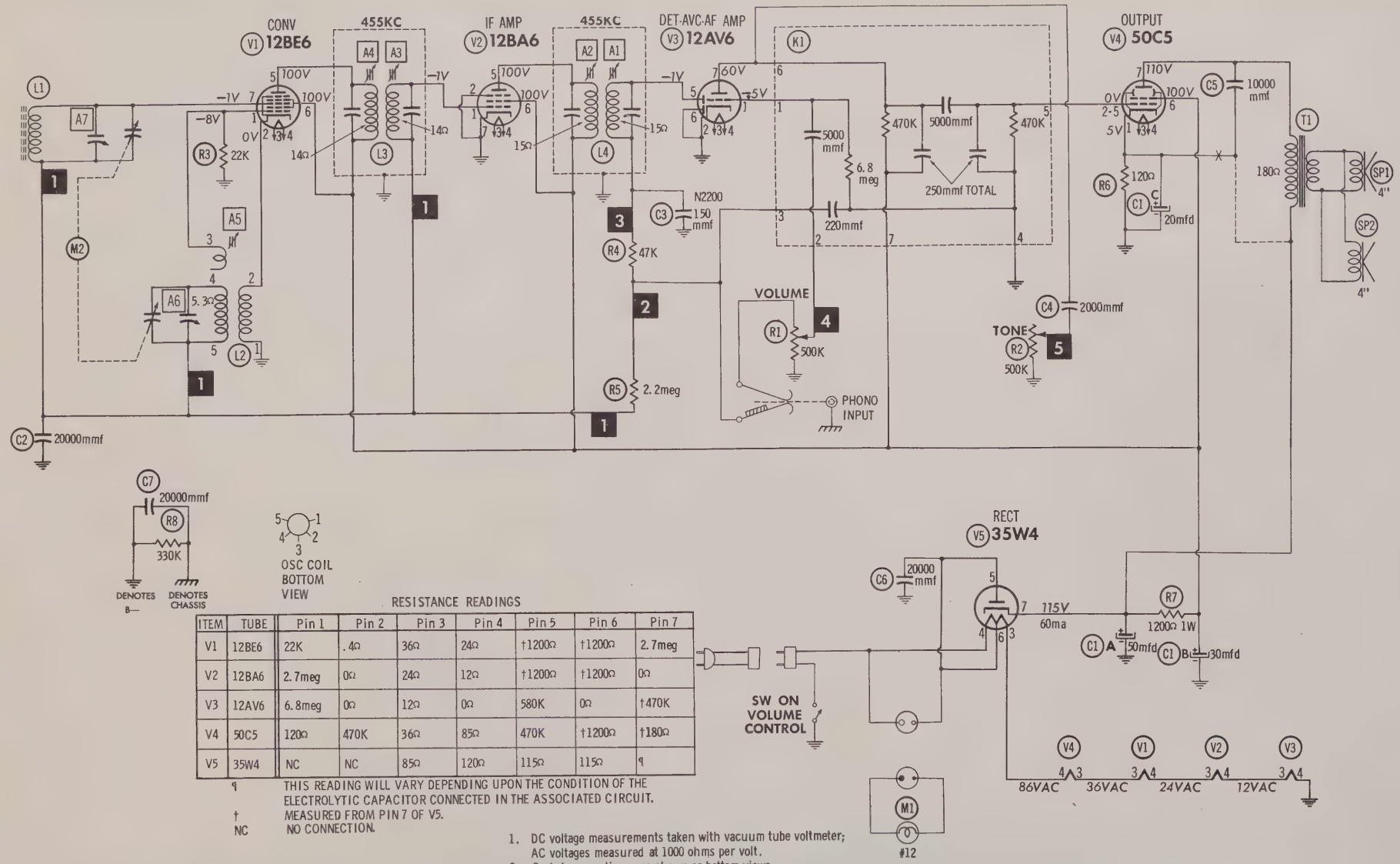
H840

ARVIN MODEL 2585 (Ch. 1.45000)
ARVIN MODEL 2585 (Ch. 1.45000)
SET 428 FOLDER 4



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.4Ω	36Ω	24Ω	†1200Ω	†1200Ω	2.7meg
V2	12BA6	2.7meg	0Ω	24Ω	12Ω	†1200Ω	†1200Ω	0Ω
V3	12AV6	6.8meg	0Ω	12Ω	0Ω	580K	0Ω	†470K
V4	50C5	120Ω	470K	36Ω	85Ω	470K	†1200Ω	†180Ω
V5	35W4	NC	NC	85Ω	120Ω	115Ω	115Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

† MEASURED FROM PIN 7 OF V5.

NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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ARVIN MODEL 2585 (Ch. 1.45000)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det.-AVC-AF Amp.	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	44328-2	PRS150/25V 5030/20	BBRT5315C	TCT3107	TDLT-15	FMT-327	R2745 *
B	30	150							
C	20	25							

* Not normally in distributors stock. Available through distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	20000			BPD-02	DD-203	BYB6S2	B-120	5HK-S2	N2200
C3	150								
C4	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C5	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C6	20000			BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C7	20000			BPD-02	DD-203	BYB6S2	B-120	5HK-S2	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	ARVIN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	C43745	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	
R2A	500K	½	C43907	B-60	A47-500K-Z	Q13-133	U48	Tone
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

* Use KR with CRL "red label" controls and KB with "blue label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ARVIN PART No.	NOTES
R3	22K			
R4	47K			
R5	2.2meg			
R6	120Ω			
R7	1200Ω	1		
R8	330K			

COILS (RF-IF)

ITEM No.	USE	ARVIN PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loop Stick	45534-1					
L2	Osc. Coil	43644-1					
L3	Input IF	44282-1	16-6780	BC-356	13-PC9	RF-4	
L4	Output IF	44282-1	16-6780	BC-357	13-PC10	RF-4	

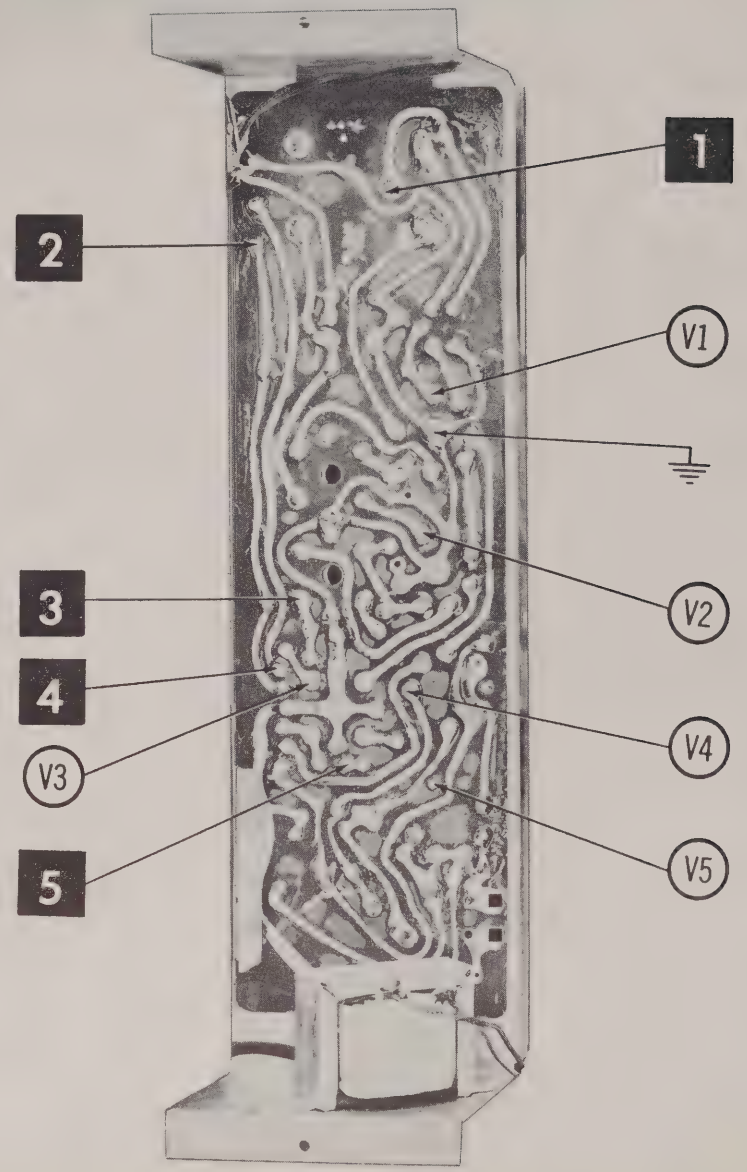
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	ARVIN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2700Ω	3-4Ω	46700-1	Z1101	A-3025	AU-605	A-3332	24S53	S-12X	

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (cont)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ARVIN PART No.	QUAM PART No.	
SP1	4"	PM	6-8Ω	45600-5 ①	4A07Z6.8 ①	① Parallel and phase.
SP2	4"	PM	6-8Ω	45600-5 ①	4A07Z6.8 ①	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ARVIN PART No.	REPLACEMENT DATA	
K1	Audio Circuit	250mmf, 220mmf, 5000mmf, 5000mmf, 470K, 470K, 6.8meg	43743-2	Aerovox Centralab Sprague	PA-512-3 PC-158 DT-5

MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M1	Lamp	45098	#12
M2	Tuning Cap.	45533-1	2 Section
	Pointer	45457-1	

CABINETS & CABINET PARTS

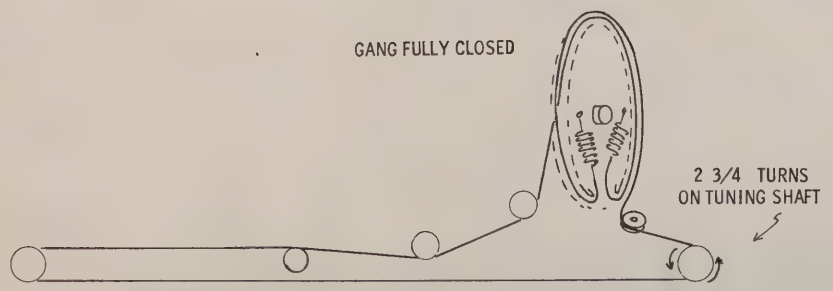
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	45468-67	3 Used
Cabinet	46177-67	Front Assembly, Includes Dial Crystal
Cabinet Back	45479-73	Flame
Cabinet Back	45479-35	Turquoise

WIRING DATA

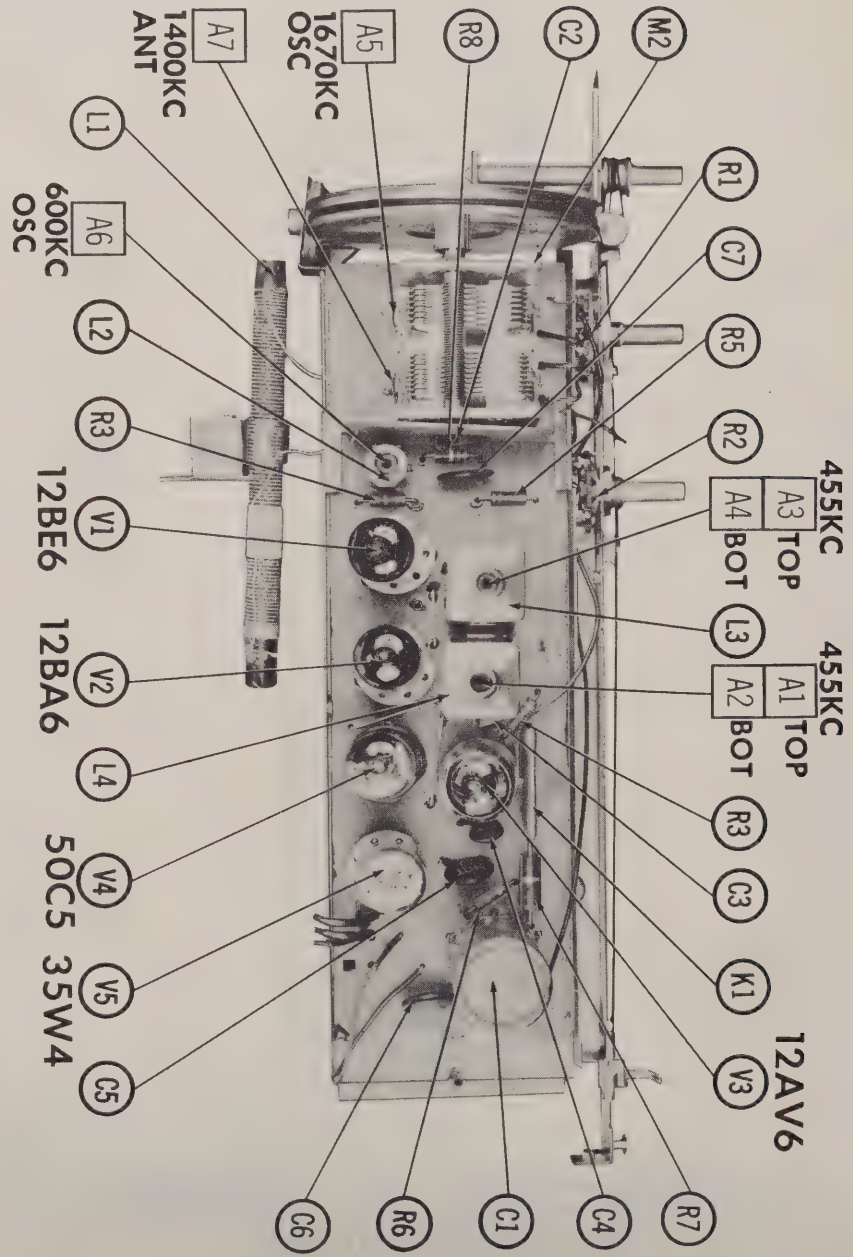
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



DIAL CORD STRINGING

CHASSIS—TOP VIEW



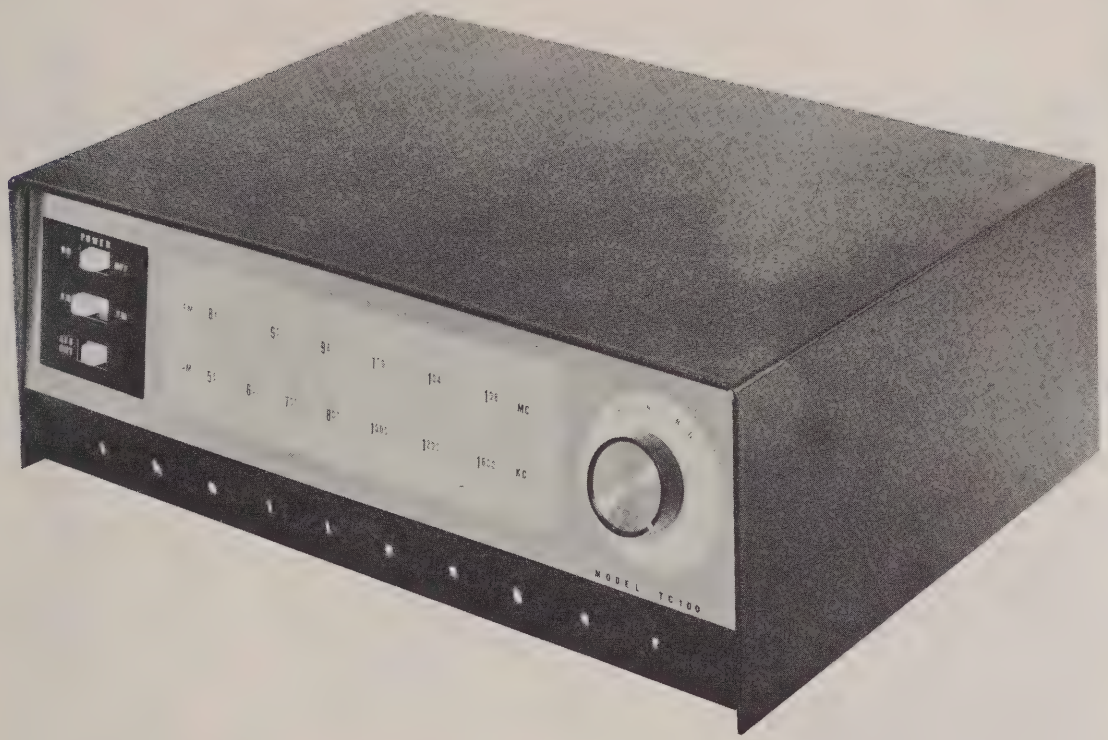
PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

CHALLENGER
MODEL TC-100

CHALLENGER
MODEL TC-100



CHALLENGER
MODEL TC-100

TRADE NAME	Challenger Model TC100		
MANUFACTURER	Challenger Amplifier Co., P. O. Box 500, Paramus, N. J.		
TYPE SET	AC Operated FM-AM Tuner		
TUBES	Seven		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	30 Watts, .30 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	530 - 1650KC	FREQ. MOD.	88 - 108MC

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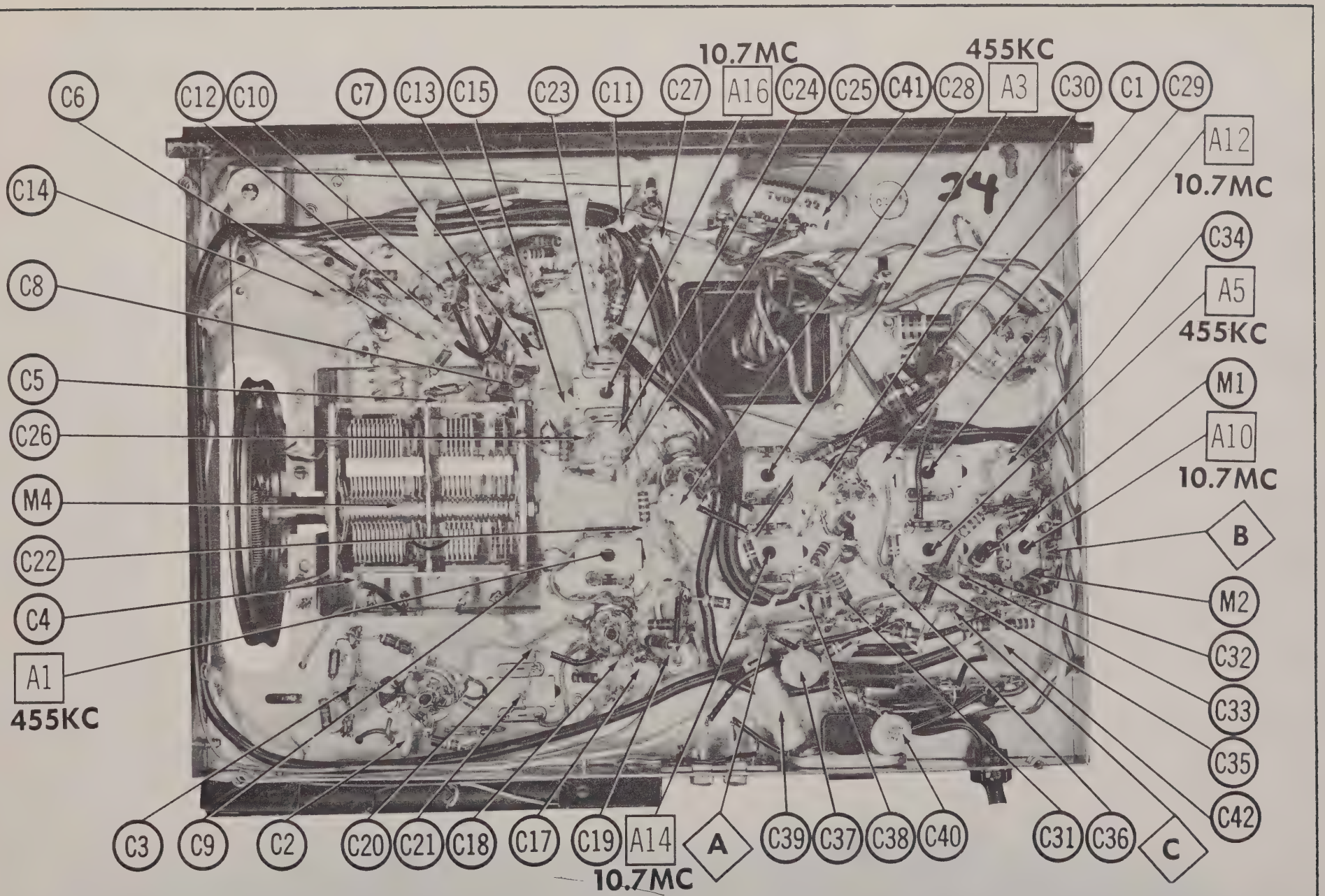
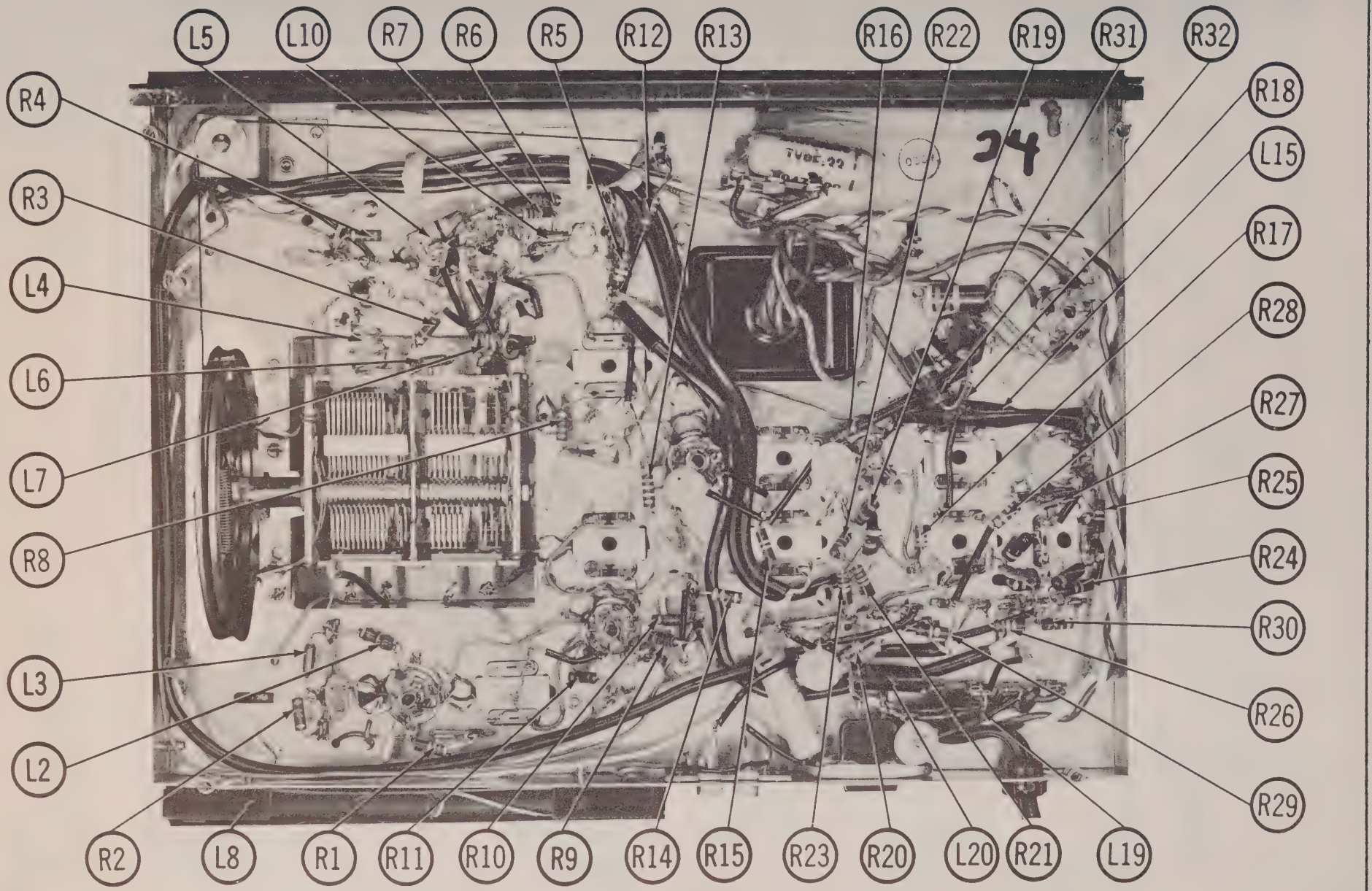
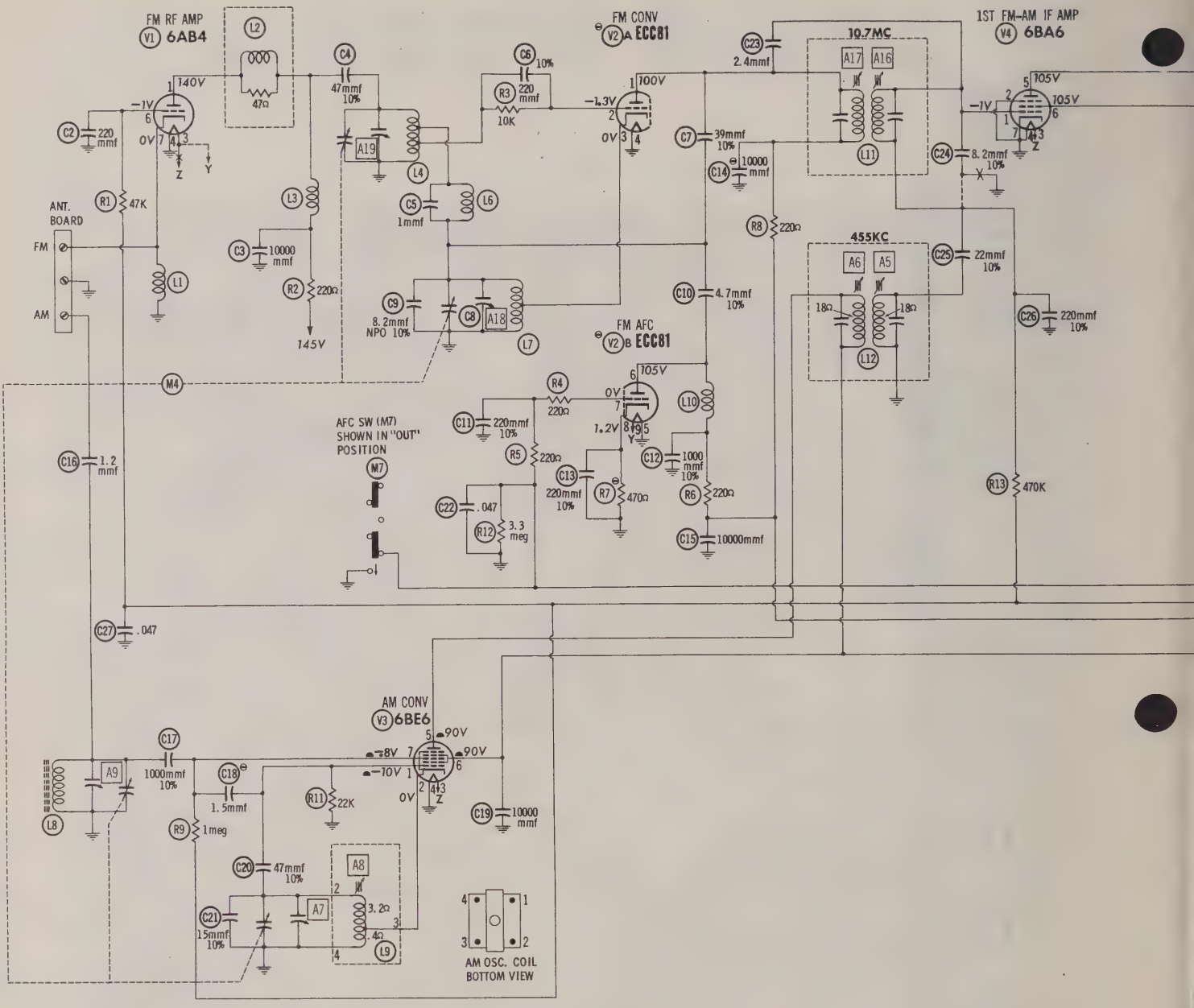
H919



CHASSIS BOTTOM VIEW - ALIGN, CAPACITOR, & MISC IDENT



CHASSIS BOTTOM VIEW - INDUCTOR & RESISTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AB4	†690Ω	0Ω	.1Ω	0Ω	0Ω	3.5meg	.1Ω		
V2	ECC81 12AT7	†1700Ω	10K	0Ω	0Ω	0Ω	†1700Ω	650Ω #440Ω	470Ω	.2Ω
V3	6BE6	22K	.4Ω	.1Ω	0Ω	†▪3700Ω	†▪3700Ω	▪4.5meg		
V4	6BA6	4meg	0Ω	.1Ω	0Ω	†1700Ω	†1700Ω	0Ω		
V5	6AU6	19Ω	0Ω	.1Ω	0Ω	†1700Ω	†1700Ω	68Ω		
V6	6AU6	100K	0Ω	.1Ω	0Ω	†30K	†30K	0Ω		
V7	6X4	84Ω	NC	0Ω	.1Ω	NC	94Ω	¶		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 7 OF V7.
▪ MEASURED IN "AM" POSITION. # MEASURED IN "FM-AFC" POSITION.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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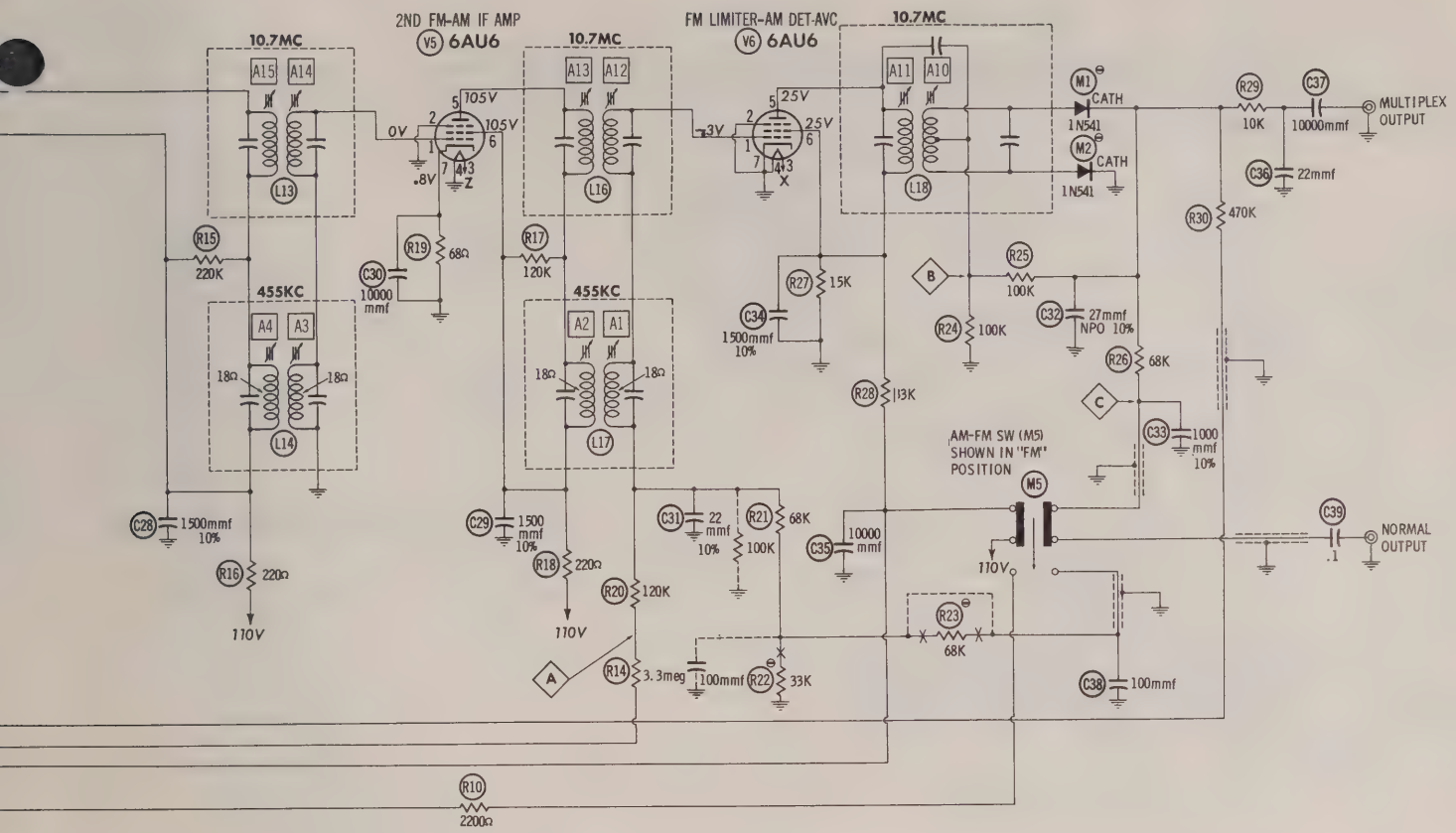
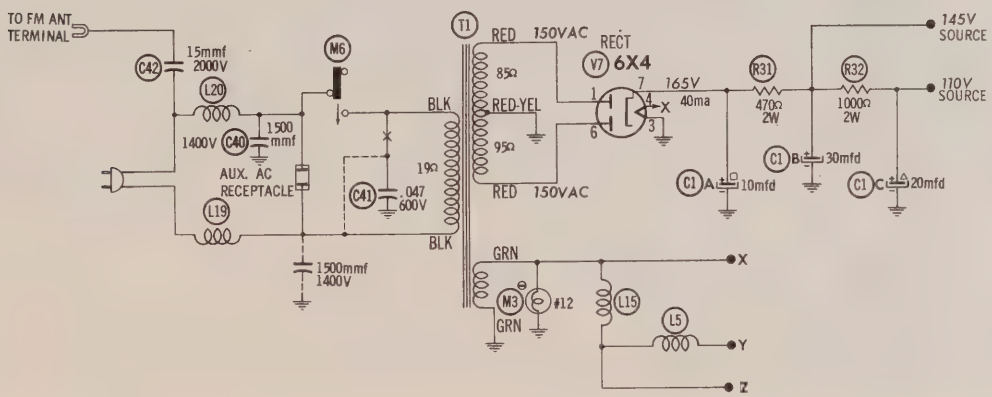




CHALLENGER
MODEL TC-100

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested alignment tools:
A1 thru A6, A10 thru A17.. General Cement 5009, 8195, 8274, 8275, 8282, 8728, 8987, 8988
Walsco 2515, 2531, 2532
A7, A9, A19..... General Cement 5000, 5003, 5004, 5008, 5009, 8276, 8290
Walsco 2515, 2520, 2523, 2525, 2537
A8..... General Cement 8606, 8606L, 8282, 9295
Walsco 2543, 2544, 2545
A18..... General Cement 5009, 8271, 8275, 8276, 8721, 8722, 9150, 9298
Walsco 2516, 2519

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	Direct	High side to AM antenna terminal. Low side to chassis.	1650KC	"	"	"	A7	"
3.	"	"	600KC	"	Tune to 600KC signal	"	A8, L8	Adjust for maximum deflection. L8 is adjusted by sliding the coil in and out of its mounting bracket.
4.	"	"	1500KC	"	Tune to 1500KC signal	"	A9	Adjust for maximum deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01mfd	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Tuning gang fully open	DC probe thru 1meg to point (B). Common to chassis.	A11, A12, A13, A14, A15, A16, A17	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe thru 1meg to point (C). Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01mfd	High side to pin 2 (grid) of 12AT7 (V2) Low side to chassis.	10.7MC (450KC Swp)	FM	Tuning gang fully open	Vert. Amp. thru 27K to point (B). Common to chassis.	A11, A12, A13, A14, A15, A16, A17	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. thru 27K to point (C). Low side to chassis.	A10, A11	Adjust A10 so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A11 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side to FM antenna terminal. Low side to chassis.	108MC	FM	108MC	DC probe to point (B). Common to chassis.	A18, A19	Set AFC switch to "AFC Out" position. Adjust A18 and A19 for maximum deflection. Check tracking.

FIG. 1

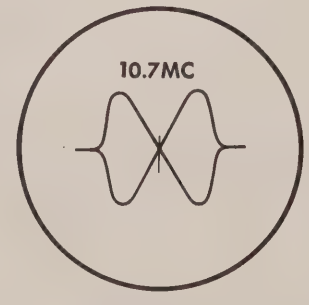


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6AB4
V2	FM Conv. - FM AFC	ECC81/12AT7 ①
V3	AM Converter	6BE6
V4	1st FM-AM IF Amp.	6BA6

ITEM No.	USE	
V5	2nd FM-AM IF Amp.	6AU6
V6	FM Limiter- AM Det. - AVC	6AU6
V7	Rectifier	6X4

① Domestic type listed may not be directly interchangeable in some instances.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	CHALLENGER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■10	250	C-543	AFH3-28-30	C0140	FP213.3 TC47	TMT-18	T-075 MT-1510	TVL-3537
B	30	150							
C	▲20	200							

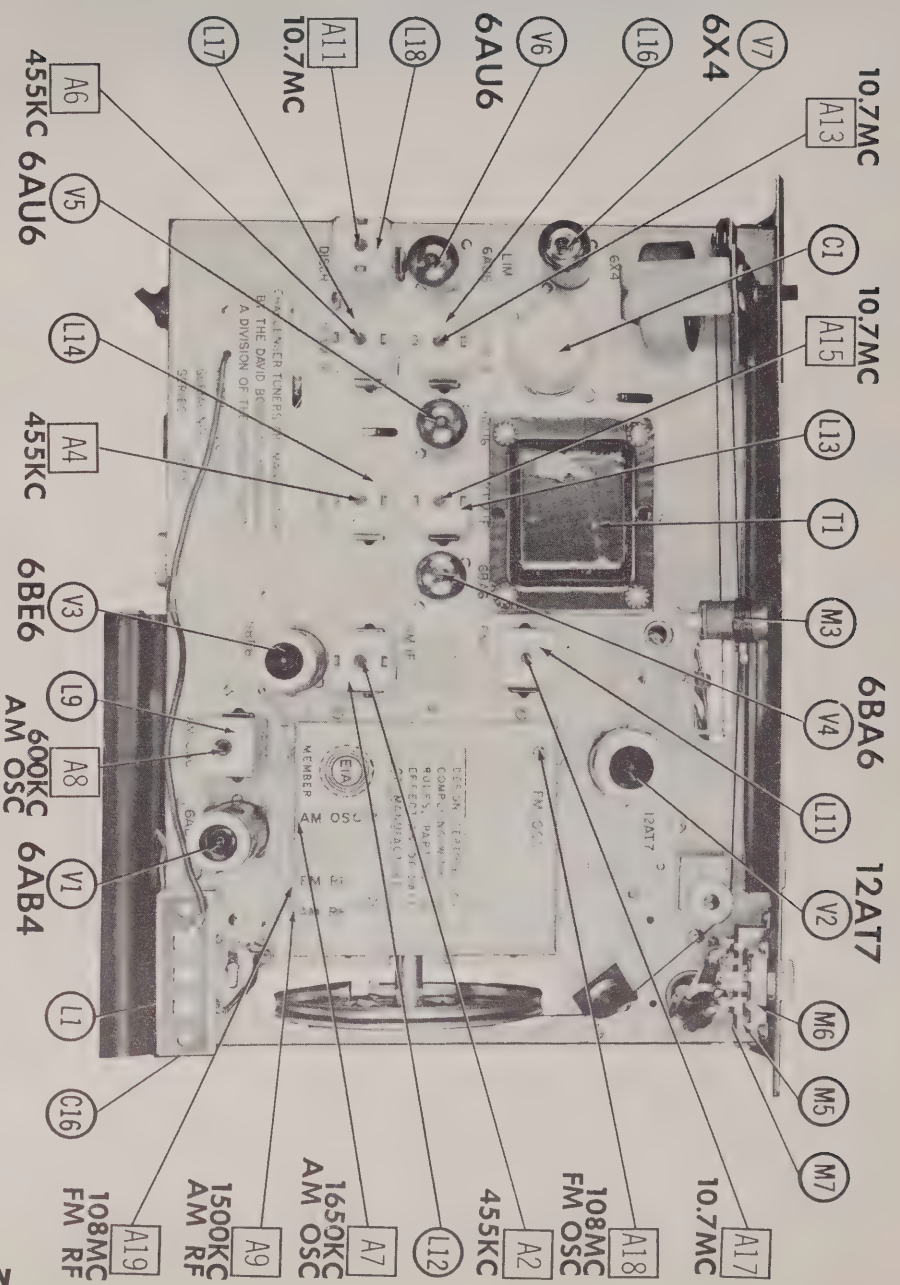
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	CHALLENGER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	220			BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	
C3	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C4	47			NPO-DI 47	DTZ-47	L10Q47		5TCC-Q47	10%
C5	1			NPO-SI 1.0	TCZ-1			5TCCB-V1	
C6	220				DD-221	L10T22		MS-322	10%
C7	39			NPO-DI 39	DTZ-39	L10Q39		MS-439	10%
C8									
C9	8.2			NPO-DI 8.2		C10V82C		5TCCB-V8.2S *	NPO 10%
C10	4.7			NPO-DI 4.7	DTZ-4R7	C10V47C	ZT-5547	5TCCB-V47	10%
C11	220				DD-221	L10T22		MS-322	10%
C12	1000					1R5D1	MCB255	MS-21	10%
C13	220				DD-221	L10T22		MS-322	10%
C14	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	①
C15	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C16	1.2							5TCCB-V1.2S *	
C17	1000					1R5D1	MCB255	MS-21	10%
C18	1.5			NPO-SI 1.5	TCZ-1R5	CTA6V15C	ZT-5515	5TCCB-V15	②
C19	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C20	47			NPO-DI 47	DD-470	L10Q47		5TCC-Q47	10%
C21	15			NPO-DI 15	DD-150	L10Q15	ZT-5415	5TCC-Q15	10%
C22	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C23	2.4							5TCCB-V2.4S *	
C24	8.2			NPO-DI 8.2		C10V82C		5TCCB-V8.2S 10%*	10%
C25	22			NPO-DI 22	DD-220	L10Q22		MS-422	10%
C26	220				DD-221	L10T22		MS-322	10%
C27	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C28	1500					1R5D15		MS-215	10%
C29	1500					1R5D15		MS-215	10%
C30	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C31	22			NPO-DI 22	DD-220	L10Q22		MS-422	10%
C32	27				TCZ-27	C10Q27C		5TCC-Q27S 10% *	NPO 10%
C33	1000					1R5D1	MCB255	MS-21	10%
C34	1500					1R5D15		MS-215	10%
C35	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C36	22			NPO-DI 22	DD-220	L10Q22		MS-422	
C37	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C38	100			DI-0001	DD-101	L10T1	UC-531	MS-31	
C39	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C40	1500	1400		HVD-15-1500	DD16-152	HVC16D15	DC30215	20HK-D15S *	
C41	.047	600		P688N-047	DF-104	CUB6S47	GEM-6147	6TM-S47	
C42	15	2000		HVD-30-15	DD30-150	HVA20Q15	DC30415	30GA-Q15	

① Some versions may use 1000mmf in this application.
② Some versions may use 1.8mmf in this application.
* Not normally in distributors stock. Available thru distributor on order to manufacturer.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (cont)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	CHALLENGER PART No.	NOTES
R1	47K			
R2	220Ω			
R3	10K			
R4	220Ω			
R5	220K			
R6	220Ω			
R7	470Ω			Note 1
R8	220Ω			
R9	1meg			
R10	2200Ω			
R11	22K			
R12	3.3meg			
R13	470K			
R14	3.3meg			
R15	220K			
R16	220Ω			

Note 1. Some versions may use 220Ω in this application.

ITEM No.	RATING OHMS	RATING WATT	CHALLENGER PART No.	NOTES
R17	120K			
R18	220Ω			
R19	68Ω			
R20	120K			
R21	68K			
R22	33K			Note 2
R23	68K			Note 2
R24	100K			
R25	100K			
R26	68K			
R27	15K			
R28	33K			
R29	10K			
R30	470K			
R31	470Ω	2		
R32	1000Ω	2		

Note 2. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA CHALLENGER PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil	U420	19-1001	BC-562	4604		1.7 Microhenries
L2	RF Choke	U514					3 Turns of Wire on 47Ω
L3	RF Choke	U420	19-1001	BC-562	4604		1.7 Microhenries
L4	FM RF Coil	U476					
L5	Fil. Choke	U420	19-1001	BC-562	4604		1.7 Microhenries
L6	RF Choke	U420	19-1001	BC-562	4604		1.7 Microhenries
L7	FM Osc. Coil	U473					
L8	Loopstick	H668					
L9	AM Osc. Coil	U454	14-1412				
L10	RF Choke	U501	19-1000	BC-561	4602		1 Microhenry ①
L11	1st FM IF	H458	16-3487	FM-254	1463		
L12	1st AM IF	H297	16-6758	BC-352	12-C1	RF-1	
L13	2nd FM IF	H355	16-3487	FM-254	1463		
L14	2nd AM IF	H297	16-6758	BC-353	12-C2	RF-2	
L15	Fil. Choke	U512					1.9 Microhenries
L16	3rd FM IF	H355	16-3487	FM-254	1463		
L17	3rd AM IF	H297	16-6758	BC-353	12-C2	RF-2	
L18	Discriminator	H295	17-3494	FM-253	1464		
L19	Line Choke	U512					1.9 Microhenries
L20	Line Choke	U512					1.9 Microhenries

① IRC Part #CLA

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA CHALLENGER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .30A	300VCT @ .040A	6.3V @ 2.5A	T375-1D						

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA CHALLENGER PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M1	1N541 *		1N636	1N295	Discriminator (Pigtail)
M2	1N541 *		1N636	1N295	Discriminator (Pigtail)

* Some versions may use 1N542 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	CHALLENGER PART No.	NOTES
M3	Lamp		#12 Type. Some versions may use #47.
M4	Tuning Cap.	C648	FM-AM (4 Section) AM Ant. 17-550mmf, AM Osc. 11-164mmf
M5	Switch	S514	FM-AM (DPDT, Slide Type)
M6	Switch	S525	Power On-Off (SPST, Slide Type)
M7	Switch	S526	AFC Out (SPST, Slide Type)

CABINETS & CABINET PARTS

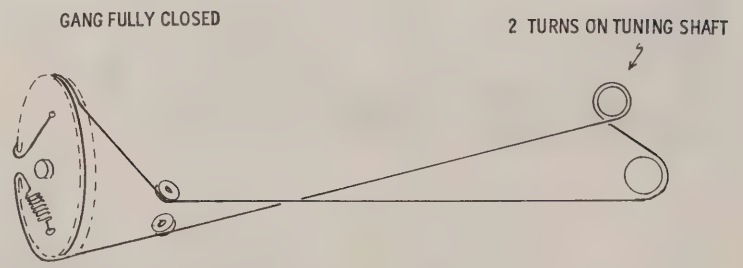
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

DIAL CORD STRINGING

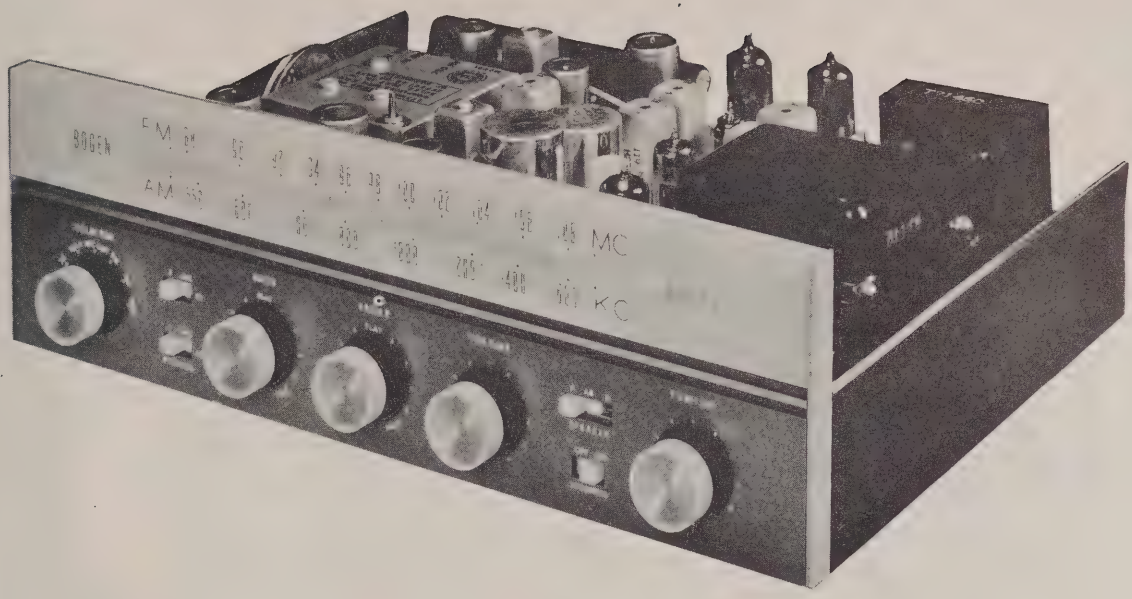


PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

DAVID BOGEN
MODEL RB115

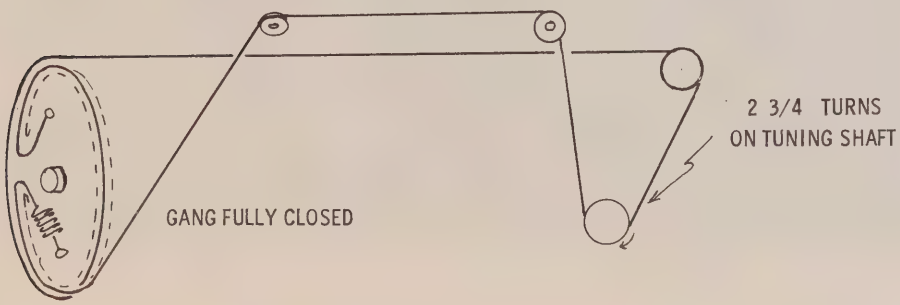
DAVID BOGEN
MODEL RB115



DAVID BOGEN
MODEL RB115

TRADE NAME	David Bogen Model RB115		
MANUFACTURER	David Bogen Co., P. O. Box 500, Paramus, N. J.		
TYPE SET	AC Operated FM-AM Receiver		
TUBES	Thirteen		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	92 Watts, . 94 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	530 - 1650KC	FREQ. MOD.	88 - 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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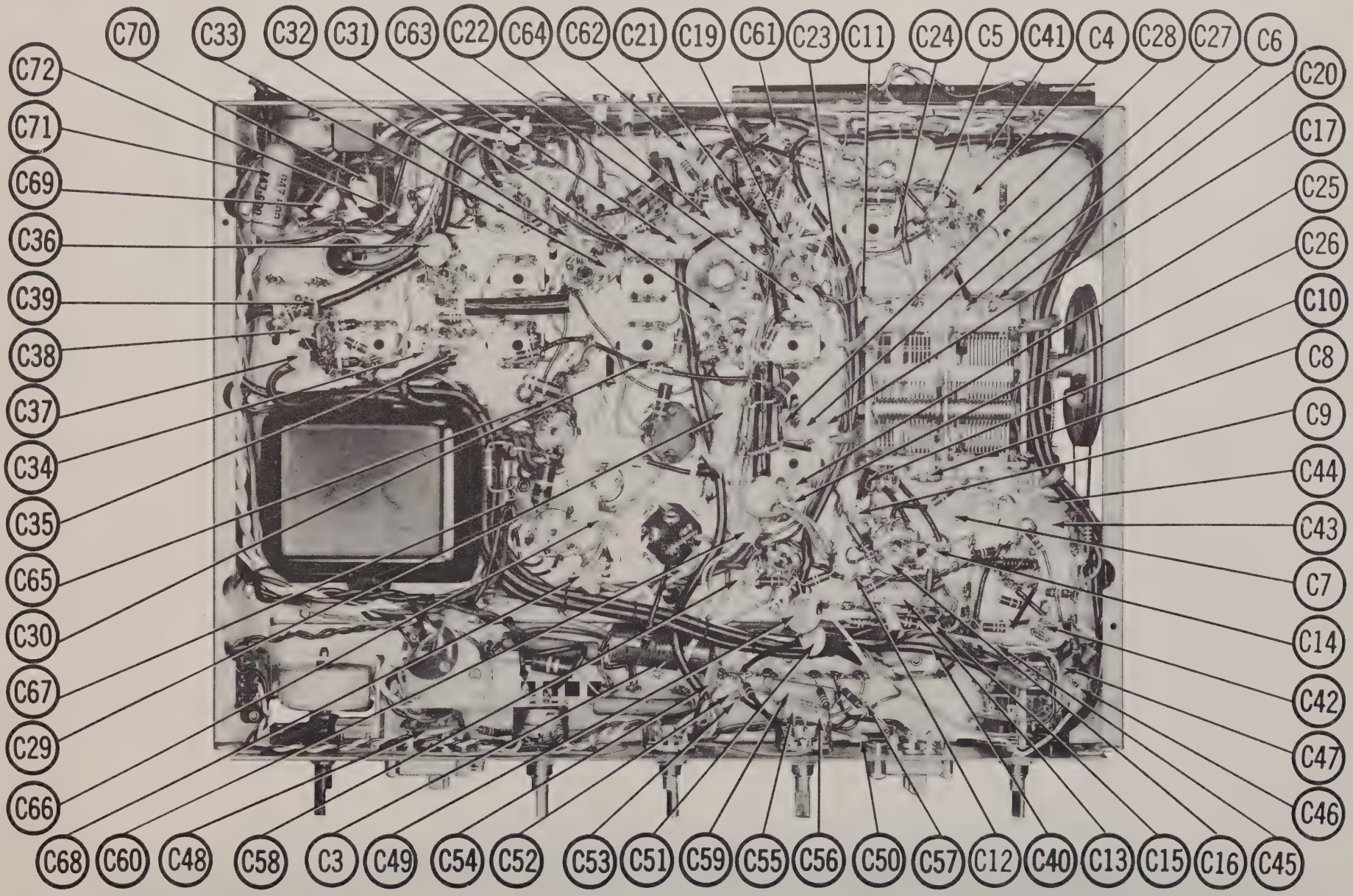
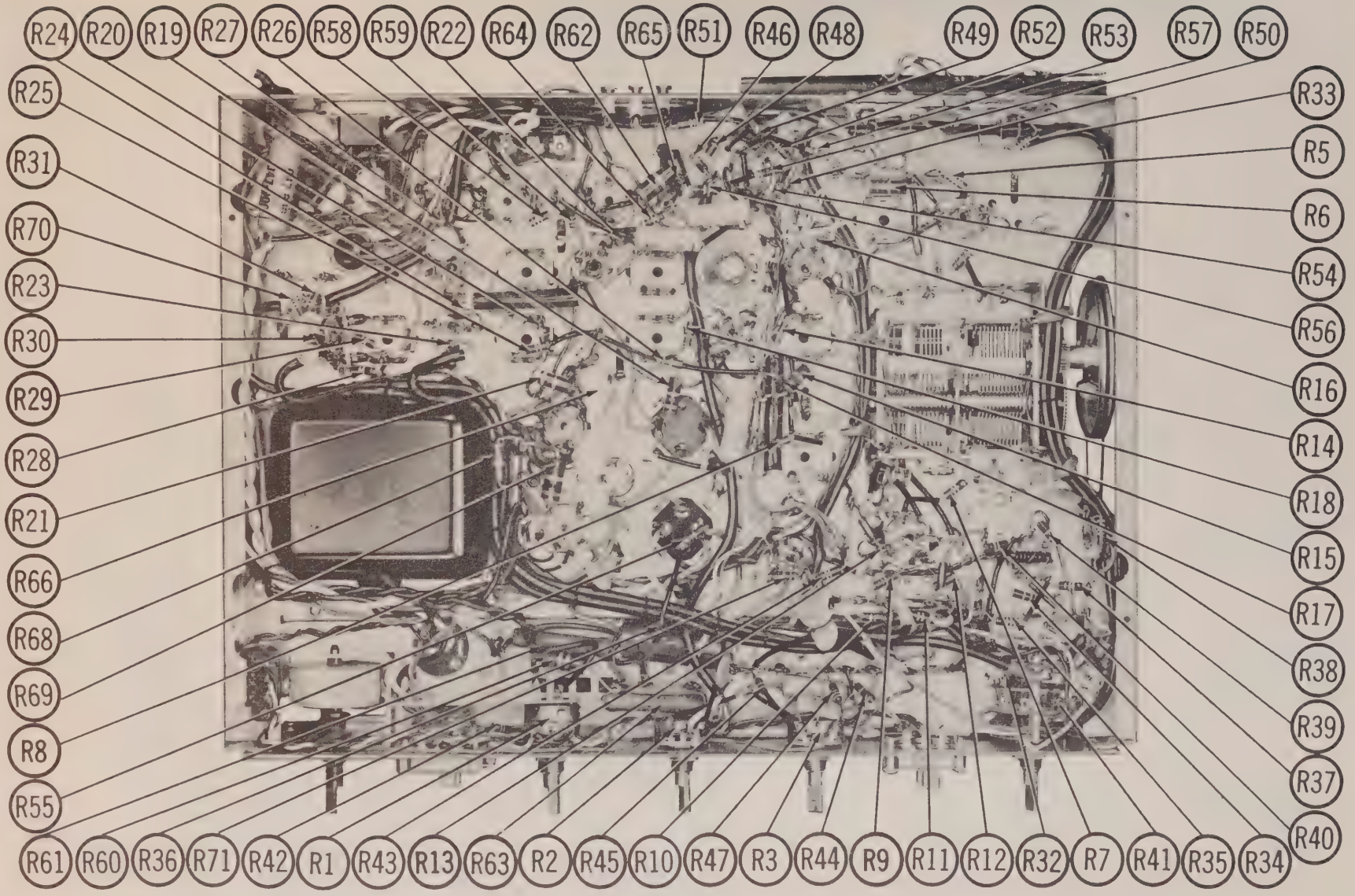
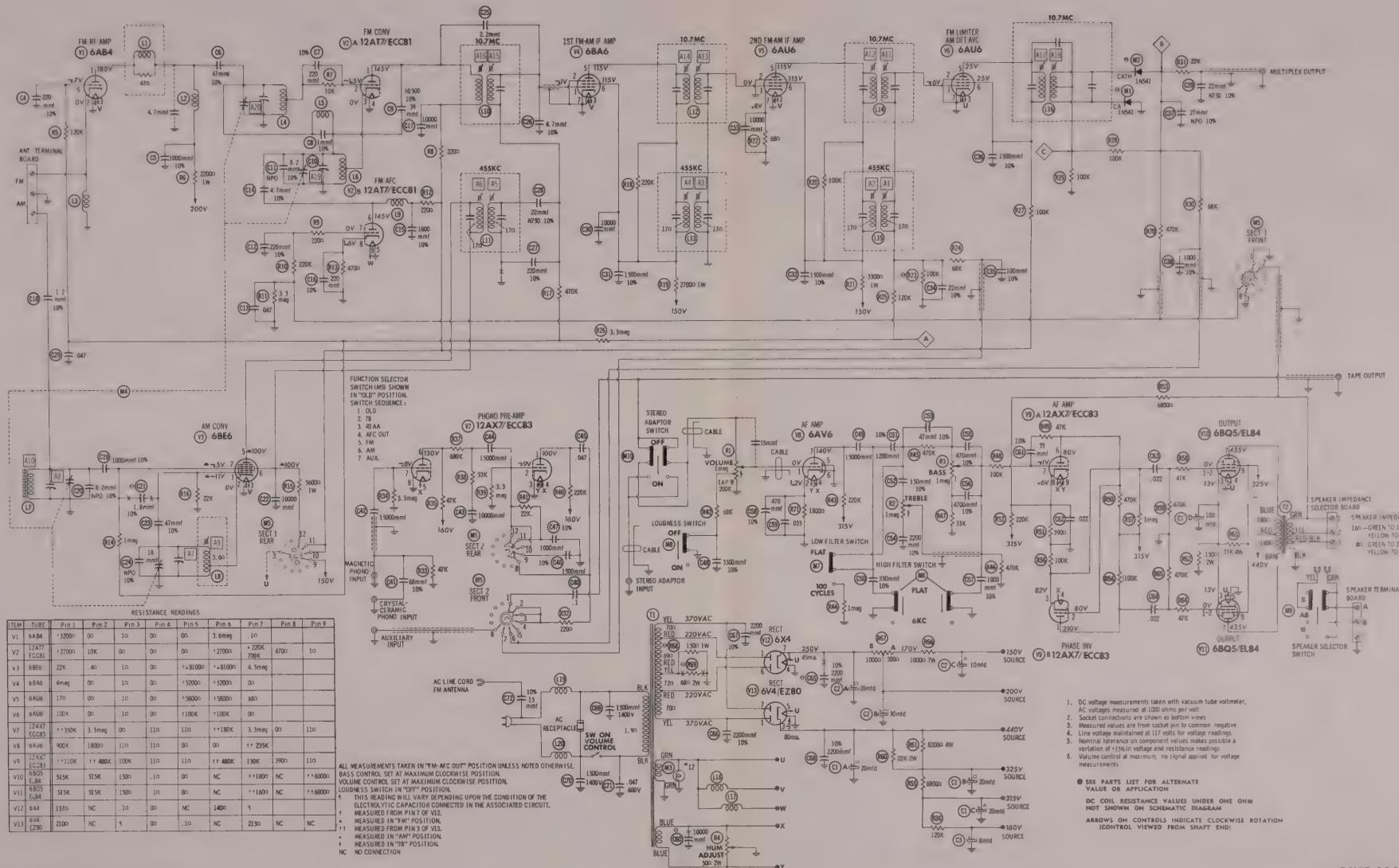


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AB4	†3200Ω	0Ω	1Ω	0Ω	0Ω	3.6meg	.1Ω		
V2	12AT7 ECC81	†2700Ω	10K	0Ω	0Ω	0Ω	†2700Ω	* 220K 700K	470Ω	1Ω
V3	6BE6	22K	.4Ω	1Ω	0Ω	†+81Ω00	†-81Ω00	4.5meg		
V4	6BA6	4meg	0Ω	1Ω	0Ω	†5200Ω	†5200Ω	0Ω		
V5	6AU6	17Ω	0Ω	1Ω	0Ω	†5800Ω	†5800Ω	68Ω		
V6	6AU6	100K	0Ω	.1Ω	0Ω	†100K	†100K	0Ω		
V7	12AX7 ECC83	††350K	3.3meg	0Ω	11Ω	11Ω	††180K	3.3meg	0Ω	11Ω
V8	6AV6	900K	1800Ω	11Ω	11Ω	0Ω	0Ω	††235K		
V9	12AX7 ECC83	††110K	†† 480K	100K	11Ω	11Ω	†† 480K	130K	390Ω	11Ω
V10	6BQ5 EL84	515K	515K	150Ω	.1Ω	0Ω	NC	††180Ω	NC	††600Ω
V11	6BQ5 EL84	515K	515K	150Ω	1Ω	0Ω	NC	††160Ω	NC	††600Ω
V12	6X4	137Ω	NC	.1Ω	0Ω	NC	140Ω	¶		
V13	6V6 EZ80	210Ω	NC	¶	0Ω	.1Ω	NC	215Ω	NC	NC

ALL MEASUREMENTS TAKEN IN "FM-AFC OUT" POSITION UNLESS NOTED OTHERWISE.
BASS CONTROL SET AT MAXIMUM CLOCKWISE POSITION.
VOLUME CONTROL SET AT MAXIMUM CLOCKWISE POSITION.
LOUDNESS SWITCH IN "OFF" POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 7 OF V12.
+ MEASURED IN "FM" POSITION.
†† MEASURED FROM PIN 3 OF V13.
- MEASURED IN "AM" POSITION.
‡ MEASURED IN "78" POSITION.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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DAVID BOGEN
MODEL RB115

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1, A2, A3, A4, A5, A6, A11, A12, A13, A14, A17, A18	General Cement	#8729, 8989, 8728, 8988, 8987, 8275, 8195
	Walsco	#2532, 2531
A15, A16	General Cement	#5097, 8727
	Walsco	#2515
A9	General Cement	#8606, 8606L, 9295
	Walsco	#2543, 2544
A7, A8, A20	General Cement	#8821, 8607, 9291, 9106, 9105, 8195, 8290, 5066, 8277, 5003, 5009, 5004, 5000, 9294, 5008
	Walsco	#2538, 2522, 2537, 2520, 2523, 2515, 2534
A19	General Cement	#8896, 8821, 8272, 8722, 8276, 8271, 8721, 9150, 8290, 5066, 8275, 8273, 9298, 8277, 9089, 5003, 5000, 9087, 8289
	Walsco	#2541, 2518, 2519, 2516, 2515, 2525, 2517

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	"	High side to AM antenna terminal. Low side to chassis.	1500KC	"	1500KC	"	A7, A8	"
3.	"	"	600KC	"	600KC	"	A9, A10	Adjust for maximum deflection. Repeat steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01mfd	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point (A). Common to chassis.	A11, A12, A13, A14, A15, A16	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (B). Common to chassis.	A17	"
6.	"	"	"	"	"	DC probe thru 1meg to point (C). Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01mfd	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (450KC Swp.)	FM	Point of non-interference	Vert. Amp. to point (A). Low side to chassis	A11, A12, A13, A14, A15, A16	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A17	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. thru 27K to point (C). Low side to chassis.	A18	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A17 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side to FM antenna terminal. Low side to chassis.	105MC (Unmod.)	FM (No AFC)	105MC	DC probe to point (A). Common to chassis.	A19, A20	Adjust for maximum deflection.
	If receiver fails to track properly, the next step should be performed.							
8.	270Ω Carbon Resistor	High side to FM antenna terminal. Low side to chassis.	90MC	FM	90MC	DC probe to point (A). Common to chassis.	L6, L4	Adjust for maximum deflection by compressing or expanding coil turns.

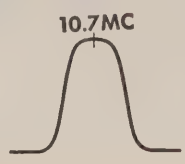


FIG. 1

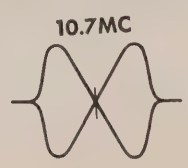
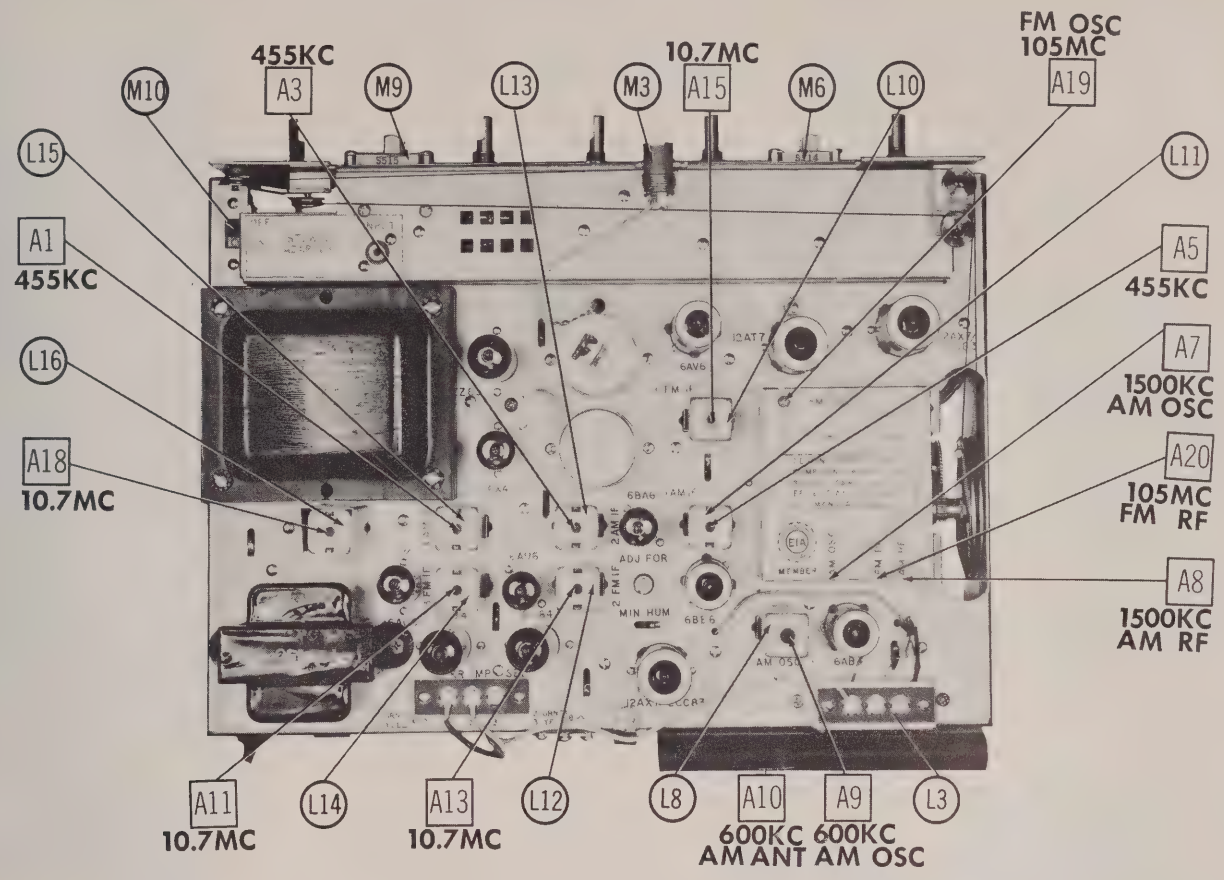
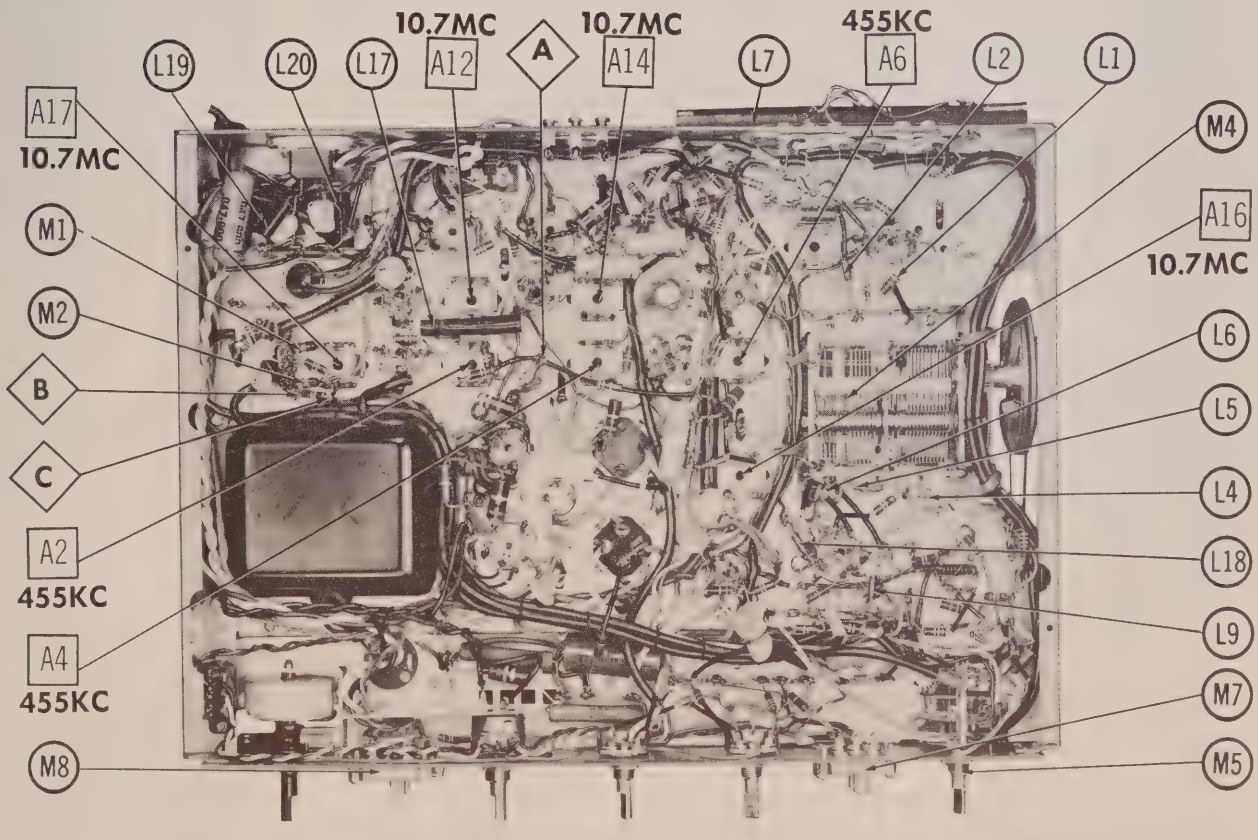


FIG. 2



CHASSIS TOP VIEW - ALIGN., INDUCTOR & MISC. IDENT.



CHASSIS BOTTOM VIEW - ALIGN., INDUCTOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6AB4
V2	FM Conv. - FM AFC	12AT7/ECC81
V3	AM Converter	6BE6
V4	1st FM-AM IF Amplifier	6BA6
V5	2nd FM-AM IF Amplifier	6AU6
V6	FM Limiter - AM Det. - AVC	6AU6
V7	Phono Preamplifier	12AX7/ECC83
V8	AF Amplifier	6AV6
V9	AF Amp. - Phase Inv.	12AX7/ECC83
V10	Output	6BQ5/EL84
V11	Output	6BQ5/EL84
V12	Rectifier	6X4
V13	Rectifier	6V4/EZ80

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA David Bogen PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▰20	500	C548		D0690	FP437	TMQ-113		TVLS-4915.2 *
B	■20	400			BBR100-25		TD-100-25		
C	▲20	300							
D	100	25							
C2A	■20	350	C536	AFH3-28-30	C1243	FP376.6		Q-035	TVLS-3639.11 *
B	▰30	350				TC62		MT-4510	
C	▲10	350							
C3	8	250		PRS250V8	BBR8-250	TC51	TD-8-250	MT-2508	TVA-1508

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA David Bogen PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	220				MD-221	L10T22	JL-322	5TCC-T22	10%
C5	1000						JL-210		10%
C6	47			NPO-DI 47	DD-470	L10Q47	CNO-447	5TCC-Q47	10%
C7	220				MD-221	L10T22	JL-322	5TCC-T22	10%
C8	1			NPO-SI 1	TCZ-1			5TCCB-V1	10%
C9	39								N1500 10%
C10									
C11	8.2			NPO-DI 8.2		C10V82C			NPO 10%
C12	220				MD-221	L10T22	JL-322	5TCC-T22	10%
C13	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C14	4.7			NPO-DI 4.7	DTZ-4R7	C10V47C	CNO-547	5TCCB-V47	10%
C15	1000						JL-210		10%
C16	220				MD-221	L10T22	JL-322	5TCC-T22	10%
C17	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C18	1.2								10%
C19	1000						JL-210		10%
C20	8.2			NPO-DI 8.2	C10V82C				NPO 10%
C21	1.8								10% Note 1
C22	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C23	47			NPO-DI 47	DD-470	L10Q47	CNO-447	5TCC-Q47	10%

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA David Bogen PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C24	18					C10Q18C	CNO-418		NPO 10%
C25	2.2			NPO-SI 2.2	TCZ-2R2	CTA6V22C		5TCCB-V22	
C26	4.7			NPO-DI 4.7	TCZ-4R7	C10V47C	CNO-547	5TCCB-V47	10%
C27	220				MD-221	L10T22	JL-322	5TCC-T22	10%
C28	22			N750-DI 22	DTN-22	C10Q22U	CN7-422	5TCU-Q22	N750 10%
C29	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C30	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C31	1500						JL-215		10%
C32	1500						JL-215		10%
C33	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C34	22			NPO-DI 22	DD-220	L10Q22	CNO-422	5TCC-Q22	10%
C35	100			NPO-DI 100	DD-101	L10T1	CNO-310	5TCC-T1	10%
C36	1500						JL-215		10%
C37	27					C10Q27C	CNO-427		NPO 10%
C38	1000						JL-210		10%
C39	22			N750-DI22	DTN-22	C10Q22U	CN7-422	5TCU-Q22	N750 10%
C40	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C41	68			NPO-DI 68	DD-680	L10Q68	CNO-468	5TCC-Q68	10%
C42	15000			BPD-015	DF-153	BYA10S15	B-115	5HK-S15	
C43	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C44	15000			BPD-015	DF-153	BYA10S15	B-115	5HK-S15	
C45	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C46	1500						JL-215		10%
C47	1000						JL-210		10%
C48	3300						JL-233		10%
C49	15000			BPD-015	DF-153	BYA10S15	B-115	5HK-S15	
C50	330				MD-331	L10T33	JL-333		10%
C51	1200						JL-212		10%
C52	150			NPO-DI 150	DD-151	L10T15	JL-215	5TCC-T15	10%
C53	47			NPO-DI 47	DD-470	L10Q47	CNO-447	5TCC-Q47	10%
C54	2200						JL-222		10%
C55	470				MD-471		JL-347		10%
C56	4700						JL-247		10%
C57	1000						JL-210		10%
C58	470				MD-471		JL-347		10%
C59	.033	200		P288N-033		CUB6S33	GEM-4133	6TM-S33	
C60	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	Note 1
C61	33			NPO-DI 33	DD-330	L10Q33	CNO-433	5TCC-Q33	10%
C62	.022	200		P288N-022	DF-203	CUB4S22	GEM-4122	2TM-S22	
C63	.022	200		P288N-022	DF-203	CUB4S22	GEM-4122	2TM-S22	
C64	.022	200		P288N-022	DF-203	CUB4S22	GEM-4122	2TM-S22	
C65	2200						JL-222		10% Note 1
C66	2200						JL-222		10%
C67	2200						JL-222		10%
C68	2200						JL-222		10%
C69	1500	1400	C863	HVD-15-1500	DD30-152	HVC16D15	2HV-215		
C70	1500	1400	C863	HVD-15-1500	DD30-152	HVC16D15	2HV-215		
C71	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C72	15			NPO-DI 15	DD-150	L10Q15	CNO-415	5TCC-Q15	10%

Note 1. Not used in some versions.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	David Bogen PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	V431	B T-73	A47F4-1meg	Q13-137X		Volume, Tap ⓐ 200K
B	Shaft			Not Req	FS-3	Not Req.		
C	Switch			KB-1 or KR-1*	SWE-12	76-1		
R2A	1meg	½	V430	B-70	A47-1meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	V430	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	50Ω	2(WW)	V113A	WN-500	A43-50	W11-050	R50L	Hum Adjust
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

Use KR with CRL "red label" controls and KB with "blue label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		David Bogen PART No.	NOTES
	OHMS	WATT		
R5	120K			
R6	2200Ω	1		
R7	10K			
R8	220Ω			
R9	220Ω			
R10	220K			
R11	3.3meg			
R12	220Ω			
R13	470Ω			
R14	1meg			
R15	5600Ω	1		
R16	22K			
R17	470K			
R18	220K			
R19	2700Ω	1		
R20	100K			
R21	3300Ω	1		
R22	68Ω			
R23	100K			Note 1
R24	68K			
R25	120K			
R26	3.3meg			
R27	100K			
R28	100K			
R29	100K			
R30	68K			
R31	22K			
R32	220Ω			
R33	47K			
R34	3.3meg			
R35	47K			
R36	120K			
R37	680K			
R38	33K			

ITEM No.	RATING		David Bogen PART No.	NOTES
	OHMS	WATT		
R39	3.3meg			
R40	220K			
R41	22K			
R42	68K			
R43	220K			
R44	1meg			
R45	470K			
R46	470K			
R47	33K			
R48	100K			
R49	47K			
R50	470K			
R51	390Ω			
R52	220K			
R53	6800Ω			
R54	100K			
R55	6800Ω			
R56	100K			
R57	1meg			
R58	47K			
R59	470K			
R60	22K	2		
R61	8200Ω	4	R403	
R62	150Ω	2	R1625	
R63	33K	4	R402	
R64	47K			
R65	470K			
R66	1000Ω	7	R710	
R67A	500Ω		R140	
B	1000Ω			
R68	150Ω	1		Note 2
R69	68Ω	2		Note 2
R70	470K			
R71	1800Ω			

Note 1. Some versions may use 47K in this application. Note 2. Some versions may use 50Ω 7W in lieu of R68 & R69 (R701).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		David Bogen PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	RF Choke	U514					3 Turns of Wire on 47Ω
L2	RF Choke	U420	19-1001	BC-562	4604		1.7 Microhenries
L3	Cathode Choke	U420	19-1001	BC-562	4604		1.7 Microhenries
L4	FM RF Coil	U470					
L5	RF Choke	U420	19-1001	BC-562	4604		1.7 Microhenries
L6	FM Osc. Coil	U475					
L7	Loopstick	H668					
L8	AM Osc. Coil	H454	14-1412				

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		David Bogen PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L9	RF Choke	U420	19-1001	BC-562	4604		1.7 Microhenries
L10	1st FM IF	H458	16-3487	FM-254	1463		
L11	1st AM IF	H297	16-6758	BC-352	12-C1	RF-1	
L12	2nd FM IF	H355	16-3487	FM-254	1463		
L13	2nd AM IF	H297	16-6758	BC-353	12-C2	RF-2	
L14	3rd FM IF	H355	16-3487	FM-254	1463		
L15	3rd AM IF	H297	16-6758	BC-353	12-C2	RF-2	
L16	Discriminator	H665	17-3494	FM-253	1464		
L17	Fil. Choke	U512					1.9 Microhenries
L18	Fil. Choke	U420	19-1001	BC-562	4604		1.7 Microhenries
L19	Line Choke	U512					1.9 Microhenries
L20	Line Choke	U512					1.9 Microhenries

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	David Bogen PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .94A	760VCT ⓐ .080A Taps ⓐ 450VCT ⓐ .045A	6.3V ⓐ .97A	83-510						
	SEC. 3									
	6.3V ⓐ 4.3A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	David Bogen PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7000Ω CT	16Ω Taps ⓐ 8Ω, 4Ω	T-2145B	Z1011 ①	A-2905	AU-606①	A-3880	26S46 ①	S-55X ①	① Drill new mounting hole.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		David Bogen PART No.	CBS PART No.	SYLVANIA PART No.	
M1	1N541 *		1N636	1N295	Discriminator (Pigtail)
M2	1N541 *		1N636	1N295	Discriminator (Pigtail)

* Some versions may use 1N542 in this application.

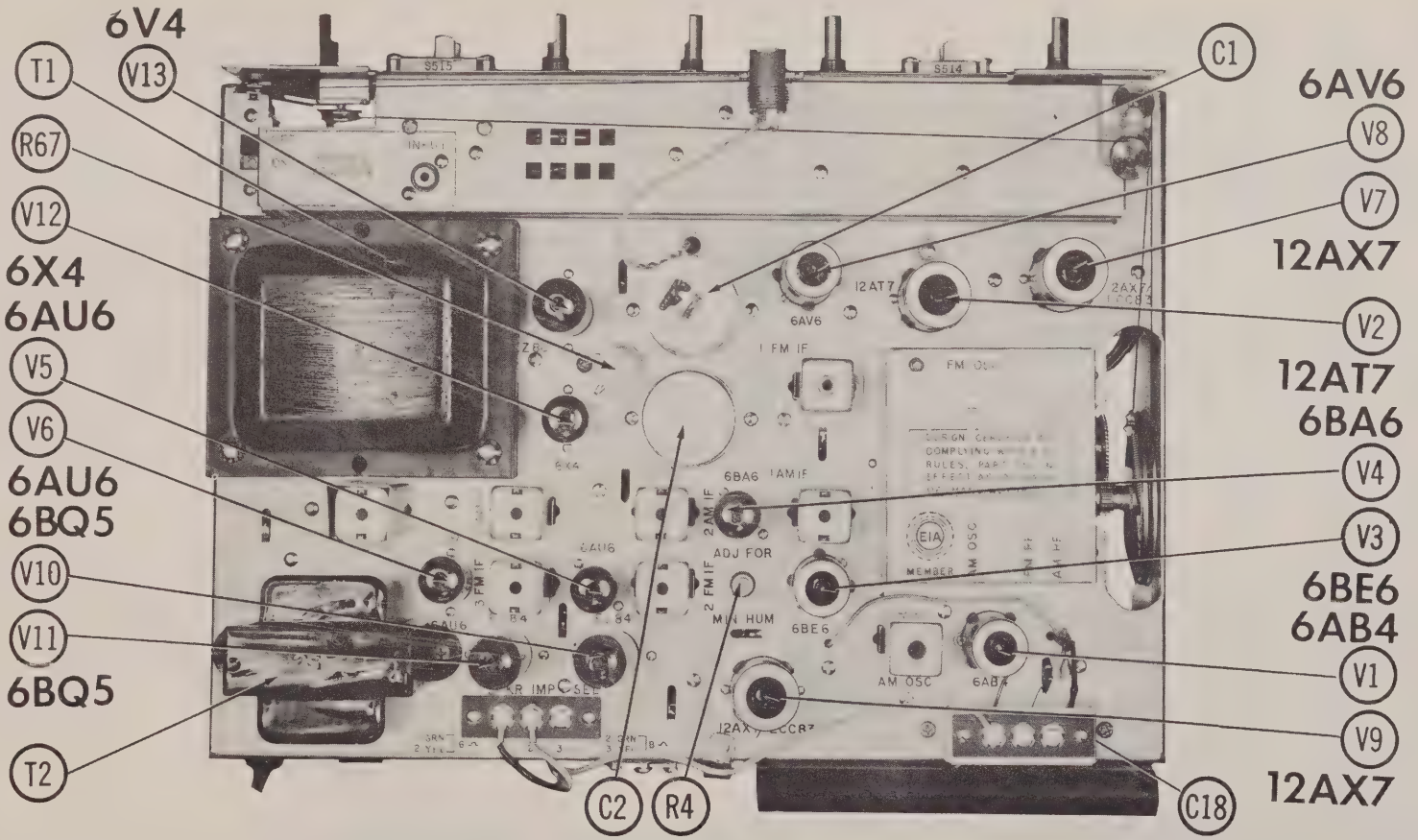
MISCELLANEOUS

ITEM No.	PART NAME	David Bogen PART No.	NOTES
M3	Lamp	H639	#12
M4	Tuning Cap.	C648	AM-FM, 4 Gang (AM Sections: Ant. 9-554mmf, Osc. 7-165mmf)
M5	Switch	S518	Function, 7 Position, Rotary, Wafer Type
M6	Switch	S514	High Filter, DPDT, Slide Type
M7	Switch	S514	Low Filter, DPST, Slide Type
M8	Switch	S514	Loudness (On-Off), DPST, Slide Type
M9	Switch	S515	Speaker Selector, DP3T, Slide Type
M10	Switch		Stereo Adapter (On-Off), DPST, Slide Type

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

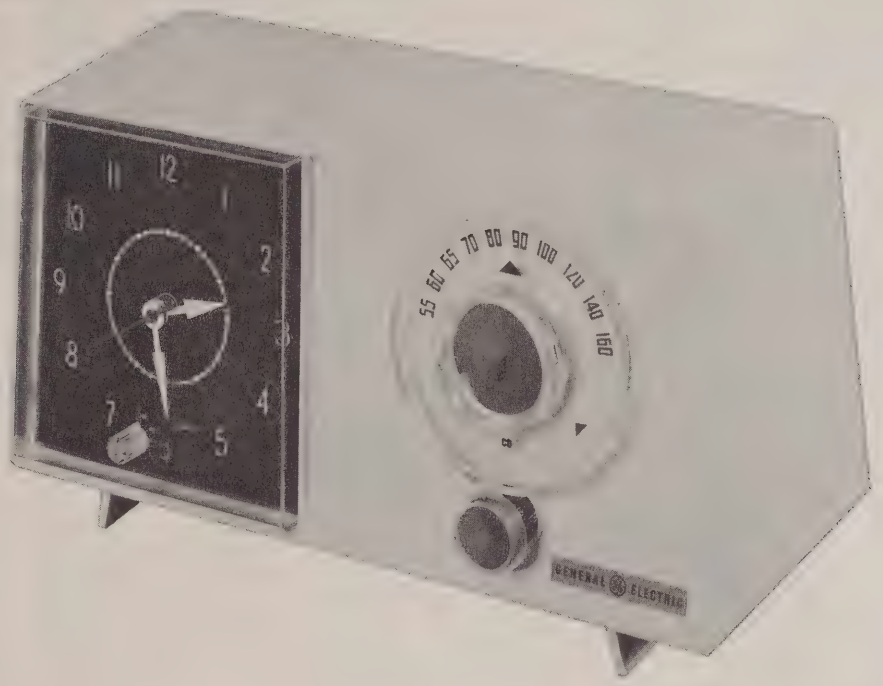


CHASSIS TOP VIEW

PHOTOFACT* Folder with CIRCUITRACE*

GENERAL ELECTRIC MODEL 930W

GENERAL ELECTRIC
MODEL 930W



GENERAL ELECTRIC
MODEL 930W

TRADE NAME	General Electric Model 930W
MANUFACTURER	General Electric Co., Products Service, Radio Receiver Dept., 869 Broad St., Utica, N.Y.
TYPE SET	AC Operated AM Receiver with Electric Clock
TUBES	Five
POWER SUPPLY	105-120 Volts AC-60 Cycles
RATING	25 Watts, .27 Amp. @ 117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain a output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to antenna stator lug of tuning gang. Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1500KC	Tune to 1500KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2 and 3.

DISASSEMBLY

1. Remove cabinet back.
2. Remove 4 mounting screws, one from each corner of the chassis.
3. Remove screw below tuning gang.
4. Remove volume control knob
5. Hold tuning knob and remove chassis by pulling out of cabinet. (Tuning knob remains with cabinet.)

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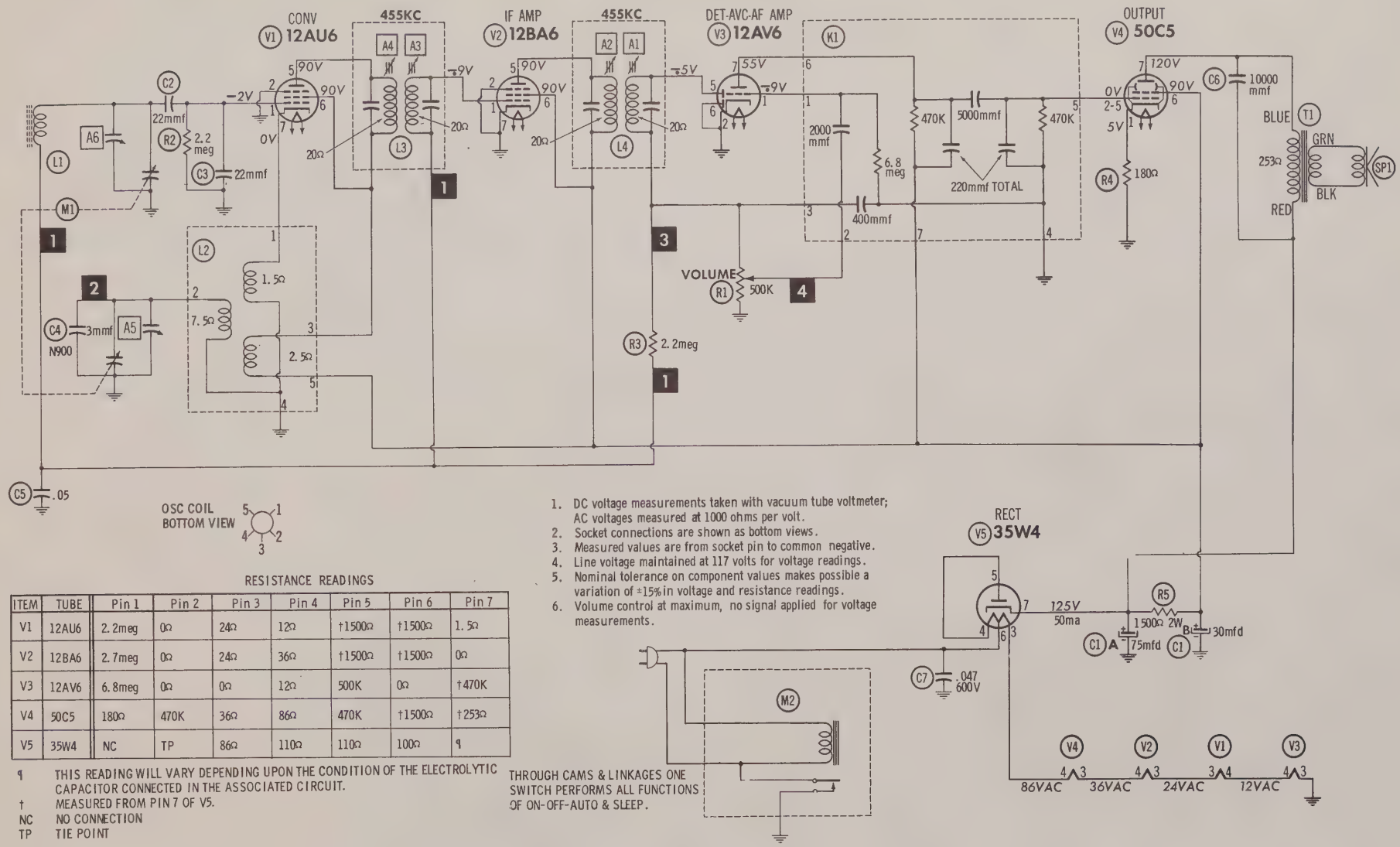

OSC COIL BOTTOM VIEW

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	2.2meg	0Ω	24Ω	12Ω	†1500Ω	†1500Ω	1.5Ω
V2	12BA6	2.7meg	0Ω	24Ω	36Ω	†1500Ω	†1500Ω	0Ω
V3	12AV6	6.8meg	0Ω	0Ω	12Ω	500K	0Ω	†470K
V4	50C5	180Ω	470K	36Ω	86Ω	470K	†1500Ω	†253Ω
V5	35W4	NC	TP	86Ω	110Ω	110Ω	100Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION
TP TIE POINT

THROUGH CAMS & LINKAGES ONE SWITCH PERFORMS ALL FUNCTIONS OF ON-OFF-AUTO & SLEEP.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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GENERAL ELECTRIC MODEL 930W

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AU6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	75	150	RCE-215	PRS150V8040	BBRD8415	WD220	TDLD-10	CADP-513	R2739 *
B	30	150							

* Not normally in distributors stock. Available through distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	G. E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	22		RCW-3196	SI 22	D6-220	LT6Q22	UC-5422	5GA-Q22	N900
C3	22		RCW-3196	SI 22	D6-220	LT6Q22	UC-5422	5GA-Q22	
C4	3		RCW-3216						
C5	.05	200	RCC-086	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C6	10000		RCW-3186	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	.047	600	RCN-053	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	RRC-325	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	KS8-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		G. E. PART No.	NOTES
	OHMS	WATT		
R2	2.2meg		URD-129	
R3	2.2meg		URD-129	

ITEM No.	RATING		G. E. PART No.	NOTES
	OHMS	WATT		
R4	180Ω		URD-031	
R5	1500Ω	2	URF-053	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		G. E. PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	RLL-064					
L2	Osc. Coil	RLC-135					
L3	Input IF	RTL-183	16-6758	BC-352	13-PC1	RF-4	
L4	Output IF	RTL-183	16-6758	BC-353	13-PC2	RF-4	

PRINTED BOARD

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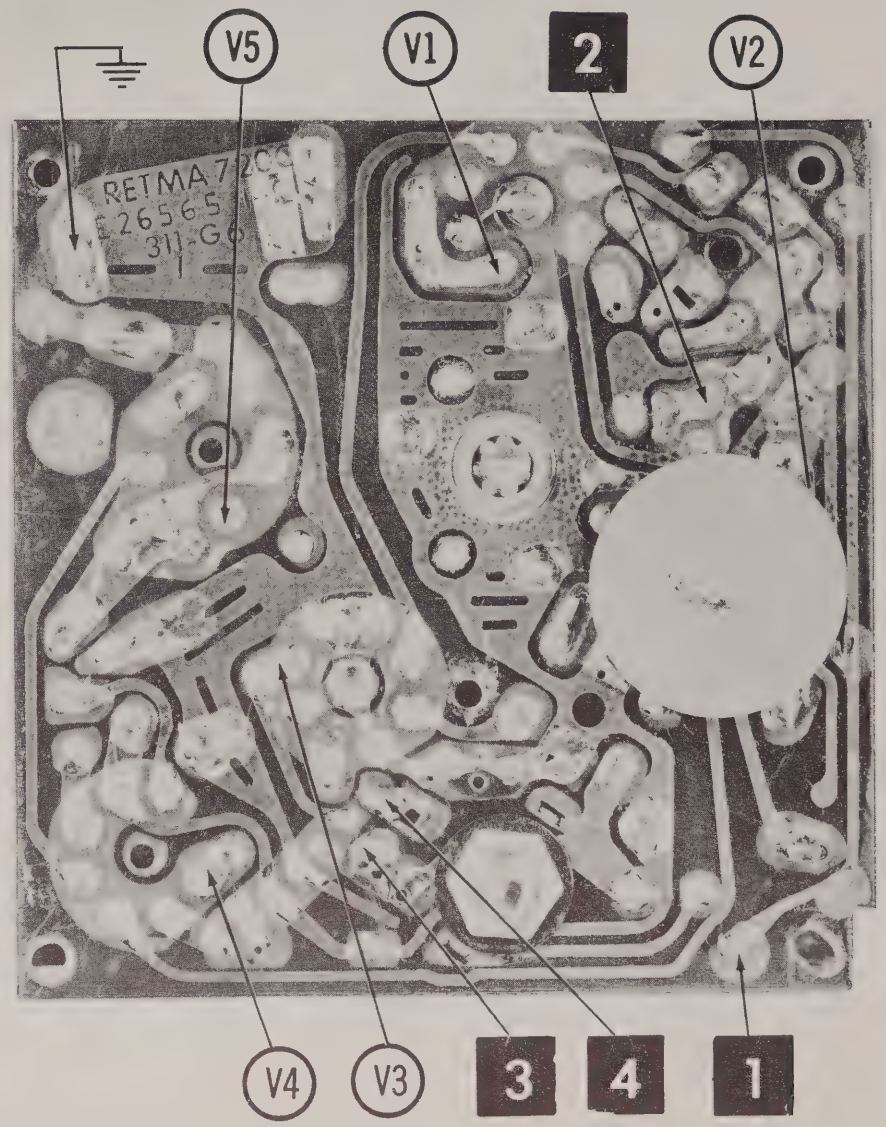
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (cont)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	G. E. PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	3-4Ω	RTO-176	Z1101 ①	A-3025 ①	AU-605 ①	A-3332 ①	26S58 ①	S-12X ①	① Use original channel frame.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	G. E. PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	ROP-035	4A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G. E. PART No.	REPLACEMENT DATA
K1	Audio Circuit	220mmf, 400mmf, 2000mmf, 5000mmf, 470K, 470K, 6.8meg	RCW-3207	

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M1	Tuning Cap.	RCT-093	2 Gang
M2	Clock Assembly	RZC-067	Telechron #C88G44

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

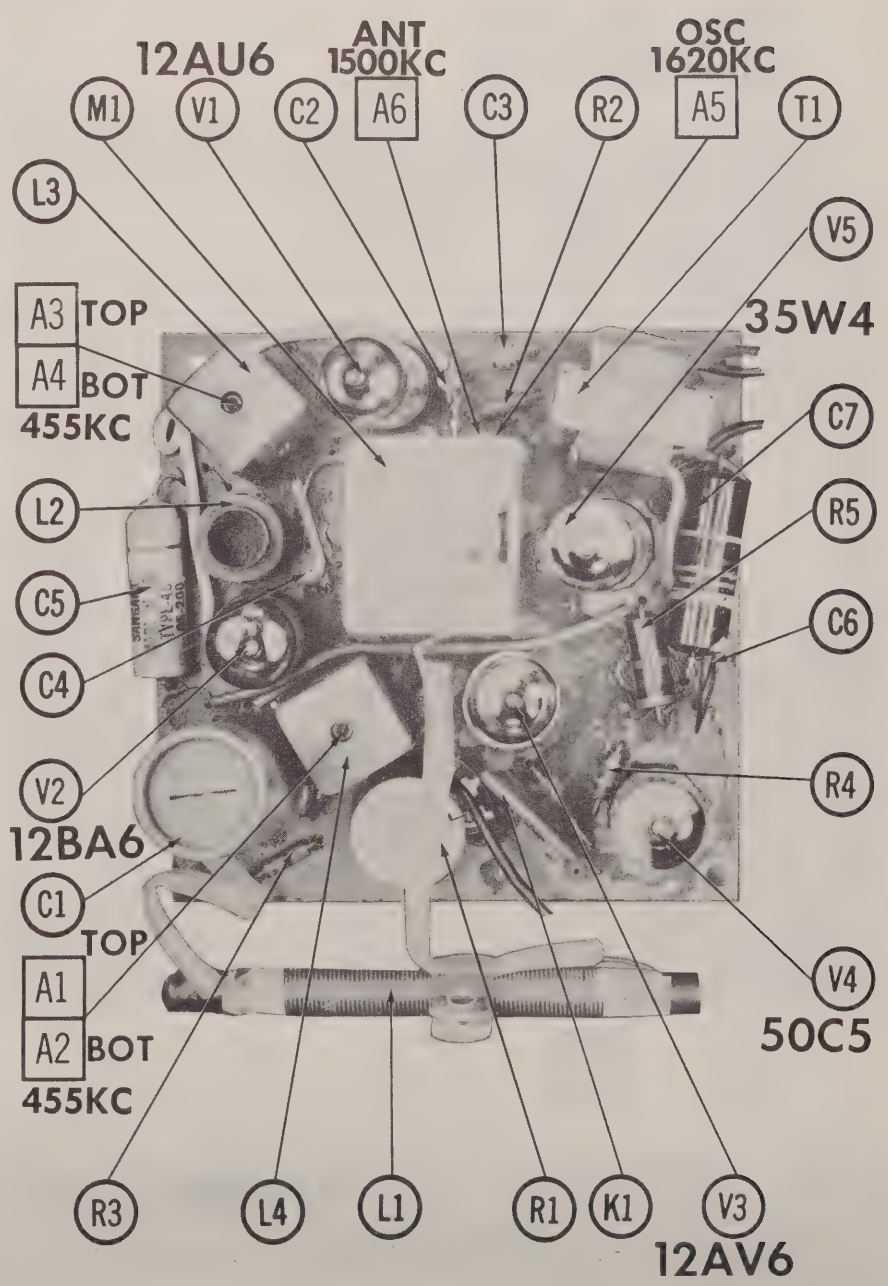
NAME	PART NO.	DESCRIPTION
Knob	RDK-596	Tuning, Includes insert
Knob	RDK-425	Volume
Knob	RZK-017	Clock, Push on type
Cabinet	RAU-472	
Cabinet Back	RAB-319	
Clock Crystal	RZW-032	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—TOP VIEW



PHOTOFACT* Folder

*TRADE-MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

GROMMES
MODEL GRT-100

GROMMES
MODEL GRT-100

GROMMES
MODEL GRT-100

TRADE NAME	Grommes Model GRT-100		
MANUFACTURER	Precision Electronics, Inc., 9101 King Ave., Franklin Park, Illinois		
TYPE SET	AC Operated FM-AM Tuner		
TUBES	Seven		
POWER SUPPLY	110-120 Volts AC - 60 Cycles	RATING	35 Watts, .36 Amp. @ 117 Volts AC
TUNING RANGE--BROADCAST	540 - 1700KC	FREQ. MOD.	88-108MC

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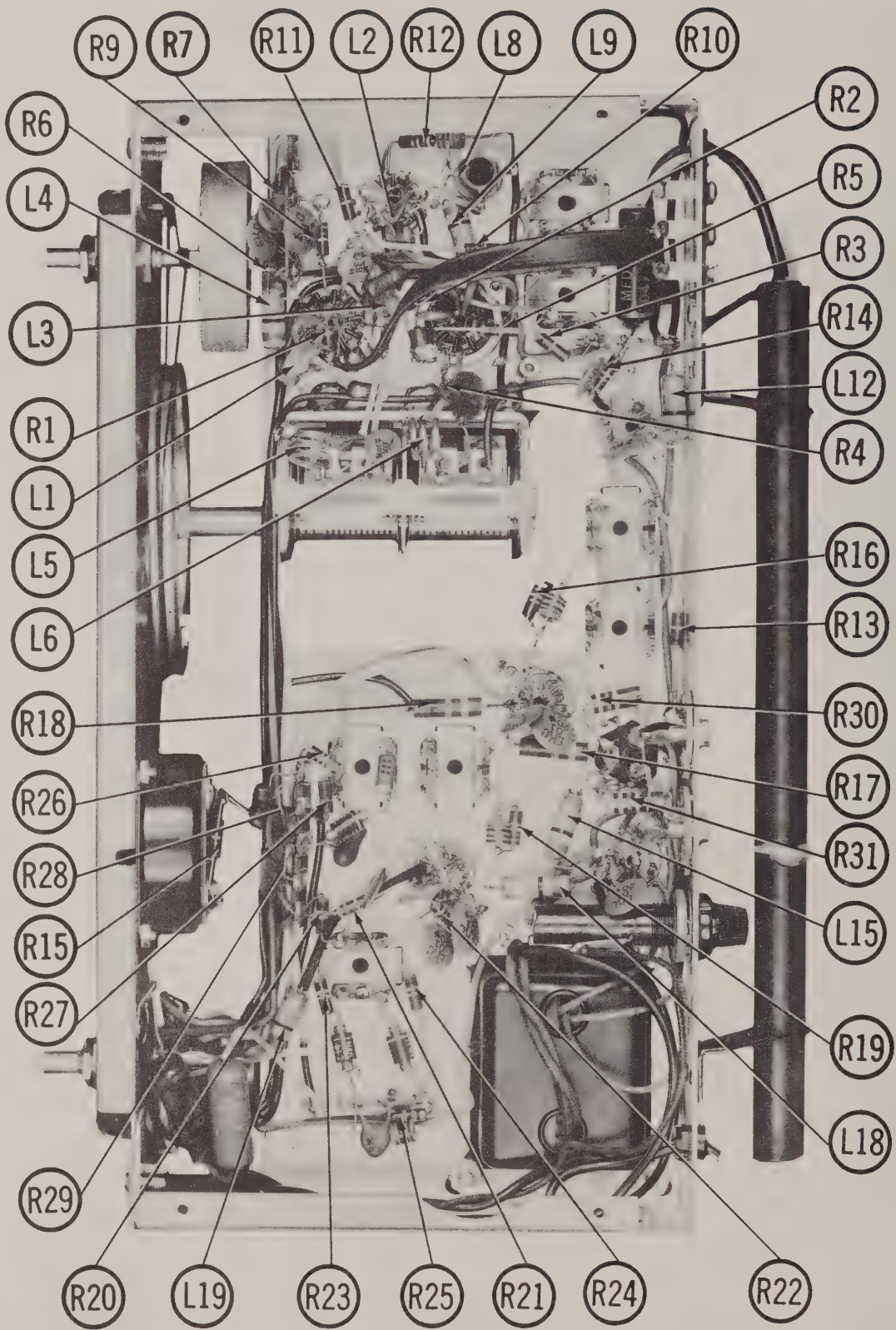
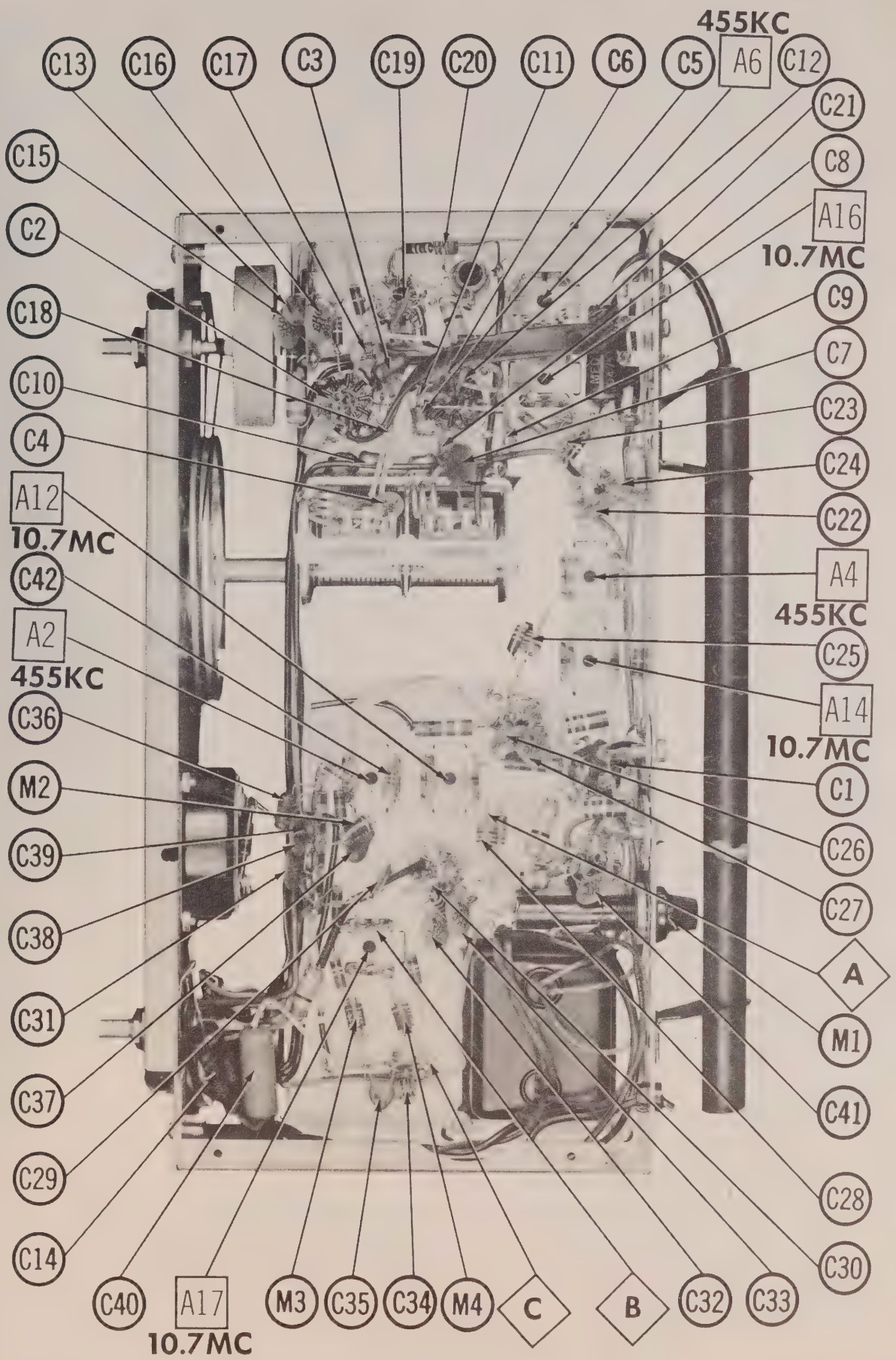
H799

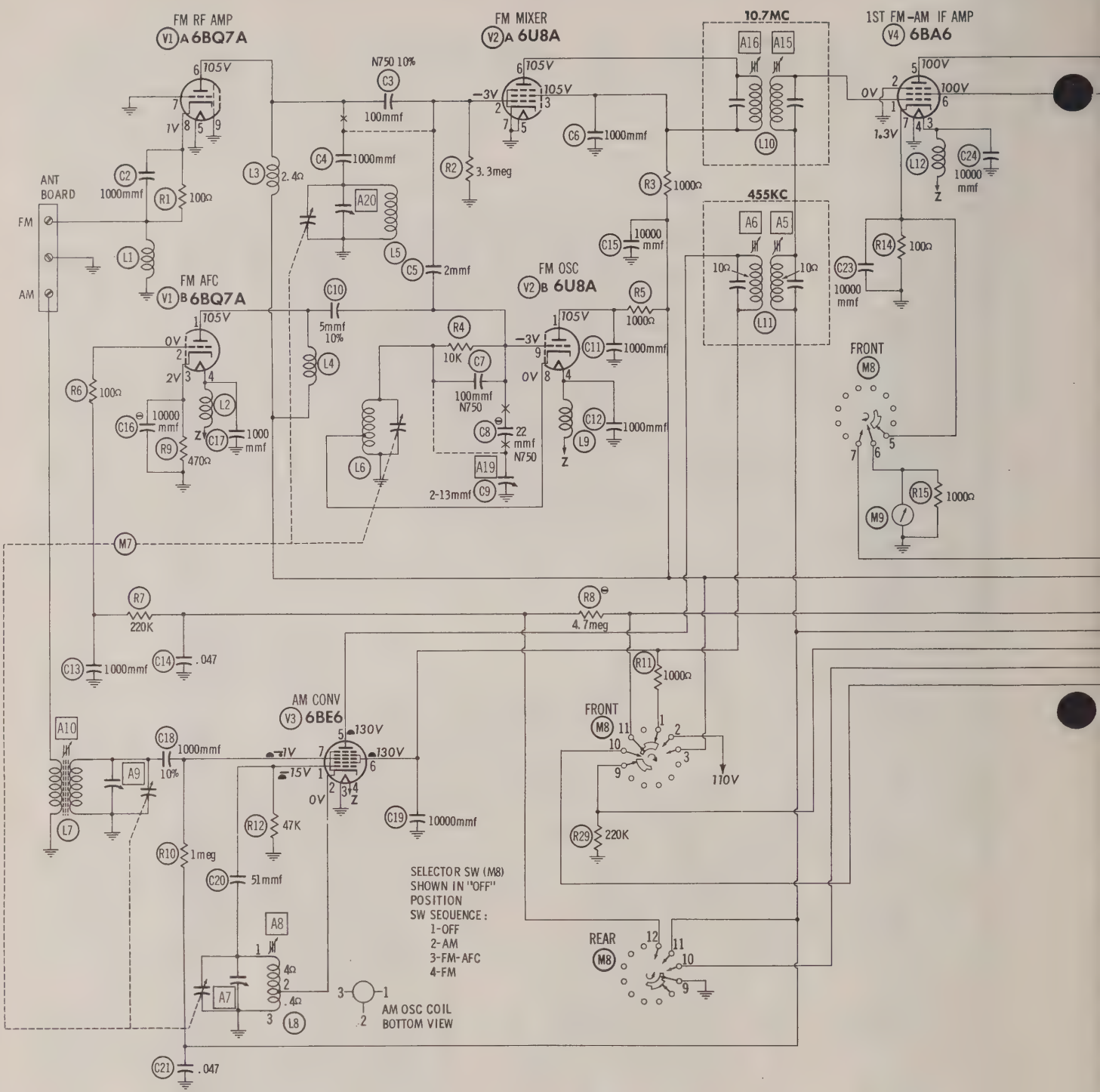
SET 428 FOLDER 8



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT



CHASSIS BOTTOM VIEW - ALIGN, CAPACITOR & MISC IDENT



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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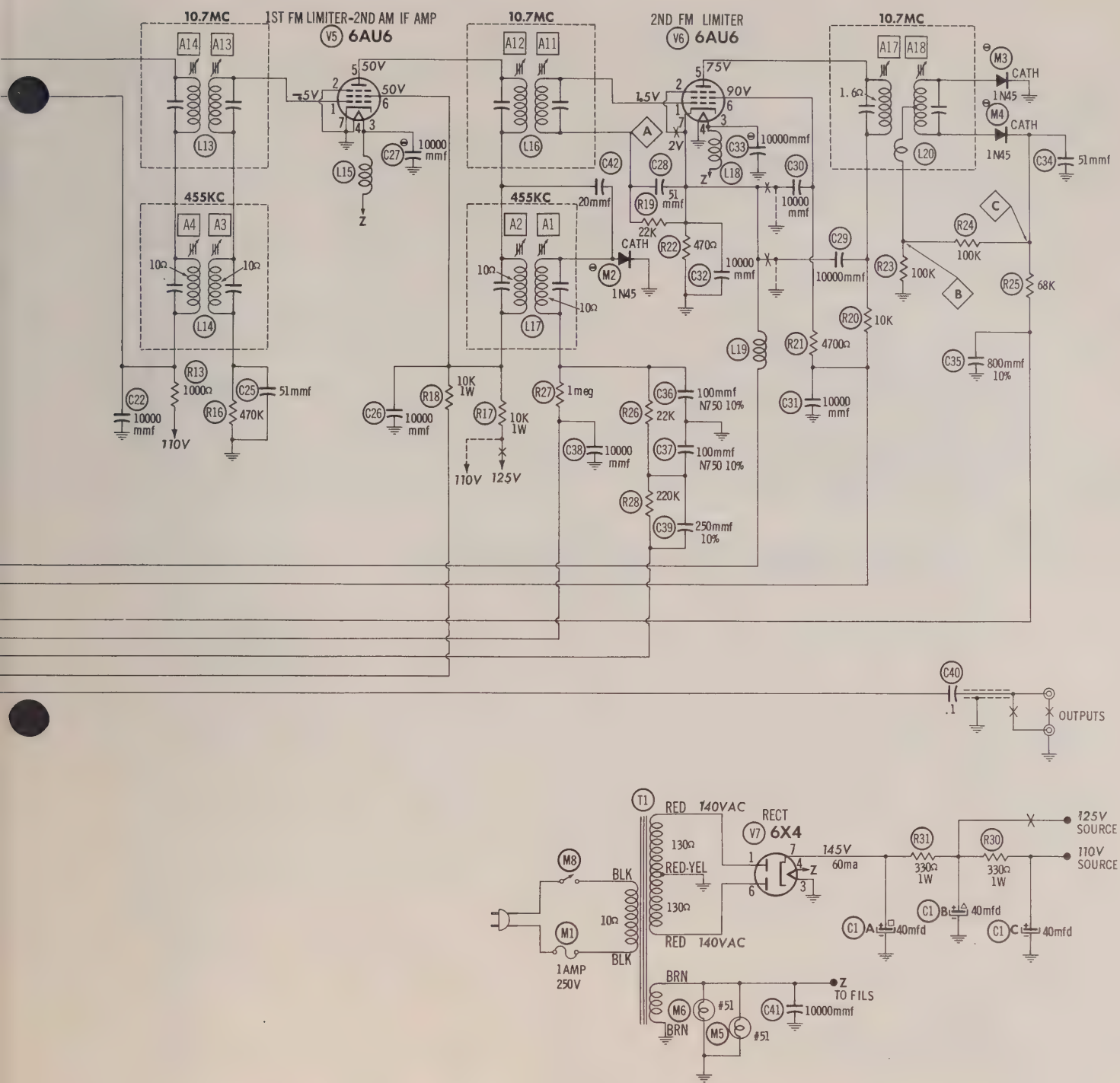


RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	† 660Ω	1.6meg	470Ω	.5Ω	0Ω	† 660Ω	0Ω	100Ω	0Ω
V2	6U8A	† 1600Ω	3.3meg	† 1600Ω	.5Ω	0Ω	† 1600Ω	0Ω	0Ω	10K
V3	6BE6	▲ 47K	▲ 4Ω	0Ω	.1Ω	†▲ 1600Ω	†▲ 1600Ω	▲ 2.4meg		
V4	6BA6	11Ω	0Ω	.5Ω	0Ω	† 1600Ω	† 1600Ω	100Ω		
V5	6AU6	470K	0Ω	.5Ω	0Ω	† 10K	† 10K	0Ω		
V6	6AU6	22K	470Ω	.5Ω	0Ω	† 10K	† 5300Ω	470Ω		
V7	6X4	130Ω	0Ω	0Ω	.1Ω	0Ω	130Ω	#		

\# THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM PIN 7 OF V7
▲ MEASURED IN "AM" POSITION.

GROMMES MODEL GRT-100

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	Highside to AM antenna Stator lug of tuning gang. Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	AC probe to audio output jack. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	"	Highside to AM antenna terminal. Low side to chassis.	1650KC	"	1650KC	"	A7	"
3.	"	"	600KC	"	600KC	"	A8	Adjust for maximum deflection while rocking tuning gang. Repeat Steps 2 & 3.
4.	"	"	1400KC	"	Tune for 1400KC signal	"	A9	"
5.	"	"	600KC	"	Tune for 600KC signal	"	A10	"

FM IF ALIGNMENT, USING AM SIGNAL GENERATOR & VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	200mmf	Highside to Pin 2 (grid) of 6U8A (V2). Lowside to chassis.	10.7 MC (Unmod.)	FM	Point of non-interference	DC probe to point (A). Common to chassis.	A11, A12, A13, A14, A15, A16,	Adjust for maximum deflection.
7.	"	"	"	"	"	DC probe thru 1meg to point (B). Common to chassis.	A17	"
8.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR & OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	200mmf	Highside to Pin 2 (grid) of 6U8A (V2). Lowside to chassis.	10.7 MC (450KC SWP)	FM	Point of non-interference.	Vert. Amp to point (A). Low side to chassis.	A11, A12, A13, A14, A15, A16	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
7.	"	"	"	"	"	Vert. Amp thru 27K to point (B). Lowside to chassis	A17	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	"	"	"	"	"	Vert. Amp to point (C). Low side to chassis.	A18	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A17 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	270Ω Carbon Resistor	Highside to FM antenna terminal. Lowside to chassis.	108MC (Unmod.)	FM	108MC	DC probe to point (A). Common to chassis.	A19, A20	Adjust for maximum deflection.
	Step 10 is not necessary unless tuner fails to track properly.							
10.	"	"	88MC	"	88MC	"	L6, L5	Adjust for maximum deflection by compressing or expanding coil turns. Repeat Steps 9 & 10 for maximum deflection and tracking.

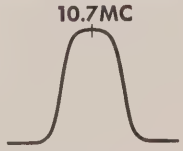


FIG. 1

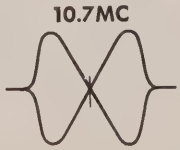


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp.-FM AFC	6BQ7A	
V2	FM Mixer-FM Osc.	6U8A	
V3	AM Converter	6BE6	
V4	1st FM-AM IF Amp.	6BA6	

ITEM No.	USE	TYPE	NOTES
V5	1st FM Limiter-2nd AM IF Amp.	6AU6	
V6	2nd FM Limiter	6AU6	
V7	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA GROMMES PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■ 40	150		AFH3-10	C0090		TMT-9	T-035 MTD-1520	R2715 *
B	▲ 40	150							
C	40	150							

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

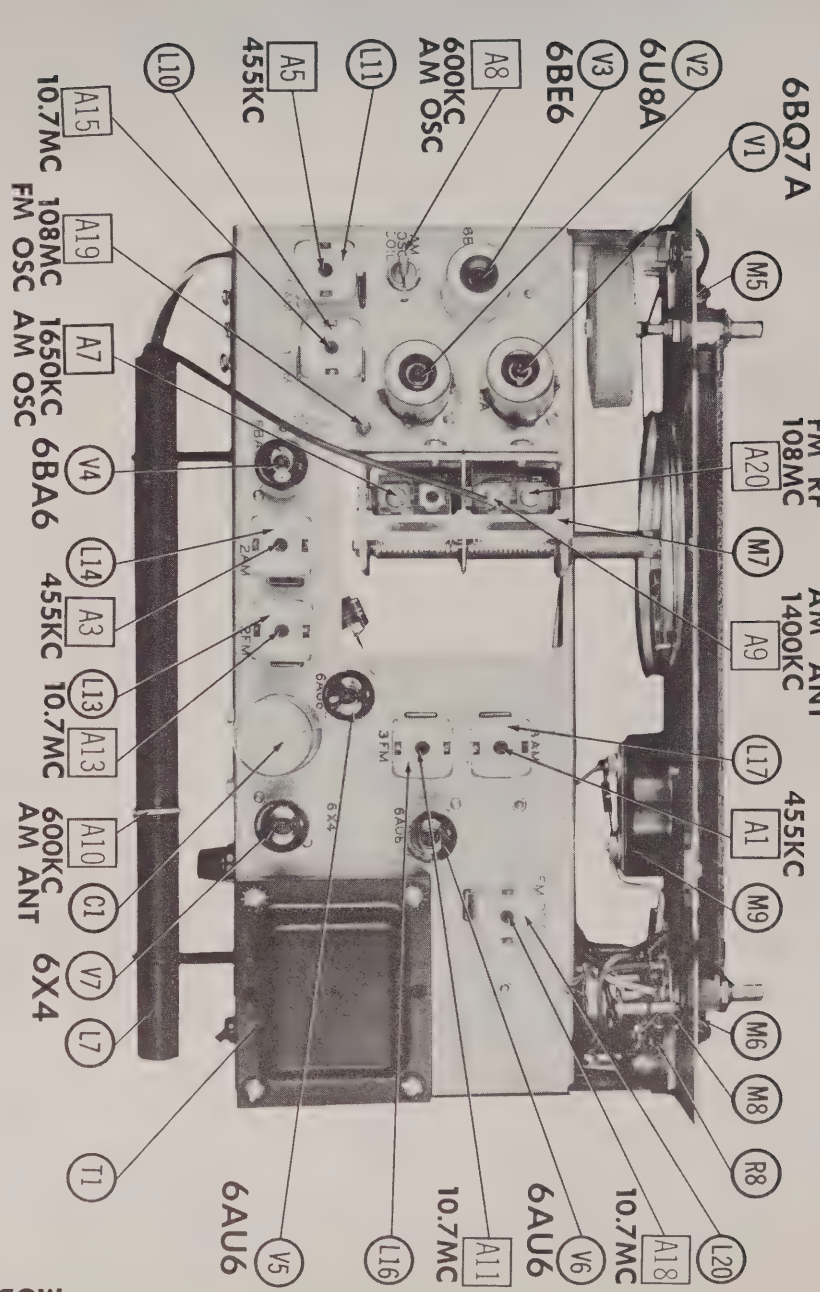
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA GROMMES PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES	
C2	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1		
C3	100			N750-SI100	TCN-100	CTA6T1U	NT-531	5TCU-T1	N750	10%
C4	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1		
C5	2			NPO-SI2	TCZ-2R2	CTA6V22C	CNO-522	5TCCB-V22		
C6	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1		
C7	100			N750-DI100	DCN-100	C10T1C	CN7-310	5TCU-T1	N750	
C8	22			N750-DI22	DCN-22	C10Q22C	CN7-422	5TCU-Q22	N750	①
C9	2-13									
C10	5			NPO-SI5	D6-050		ZT-555			10%
C11	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1		
C12	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1		
C13	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1		
C14	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C15	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C16	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		②
C17	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1		
C18	1000						JL-210			10%
C19	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C20	51			SI51	D6-500	LT6Q5	UC-545	5GA-Q5		
C21	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C22	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C23	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C24	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C25	51			SI51	D6-500	LT6Q5	UC-545	5GA-Q5		
C26	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C27	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		②
C28	51			SI51	D6-500	LT6Q5	UC-545	5GA-Q5		
C29	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C30	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C31	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C32	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C33	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		②
C34	51			SI51	D6-500	LT6Q5	UC-545	5GA-Q5		
C35	800									10%
C36	100			N750-SI100	TCN-100	CTA6T1U	NT-531	5TCU-T1	N750	10%
C37	100			N750-SI100	TCN-100	CTA6T1U	NT-531	5TCU-T1	N750	10%
C38	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C39	250				MD-251	L10T25				10%
C40	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1		
C41	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1		
C42	20			SI20	D6-200	LT6Q2	CN0-420	5GA-Q2		

① Not used in some versions.
② Some versions may use 1000mmf in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	GROMMES PART No.	NOTES
R1	100Ω			
R2	3.3meg			
R3	1000Ω			
R4	10K			
R5	1000Ω			
R6	100Ω			
R7	220K			
R8	4.7meg			Note 1
R9	470Ω			
R10	1meg			
R11	1000Ω			
R12	47K			
R13	1000Ω			
R14	100Ω			
R15	1000Ω			
R16	470K			
R17	10K	1		
R18	10K	1		
R19	22K			
R20	10K			
R21	4700Ω			
R22	470Ω			
R23	100K			
R24	100K			
R25	68K			
R26	22K			
R27	1meg			
R28	220K			
R29	220K			
R30	330Ω	1		
R31	330Ω	1		

Note 1. Some versions may use 2.2meg in this application.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA GROMMES PART No.	REPLACEMENT DATA CBS PART No.	REPLACEMENT DATA SYLVANIA PART No.	NOTES
M2	1N45 *		1N52	1N295	AM Detector (Pigtail)
M3	1N45 *		1N52	1N295	FM Detector (Pigtail)
M4	1N45 *		1N52	1N295	FM Detector (Pigtail)

* Some versions may use 1N60 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	GROMMES PART No.	NOTES
M5	Lamp		#51
M6	Lamp		#51
M7	Tuning Cap.		4 Gang, AM-FM, (AM Sections: Ant. 37-545mmf, Osc. 15-177mmf)
M8	Switch		Off, AM, FM-AFC, FM; Rotary, Wafer Type
M9	Meter		Tuning

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA GROMMES PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil				4584		.24 Microhenries ①
L2	Fil. Choke		19-1000	BC-561	4602	VP-9	1 Microhenry ①
L3	RF Choke						3.3 Microhenries
L4	RF Choke		19-1000	BC-561	4602	VP-9	1 Microhenry ①
L5	FM RF Coil						
L6	FM Osc. Coil						
L7	Loopstick						
L8	AM Osc. Coil						
L9	Fil. Choke		19-1000	BC-561	4602	VP-9	1 Microhenry
L10	1st FM IF	EI--957J	16-3487	FM-254	1463		
L11	1st AM IF	1655-19	16-6758	BC-352	12-C1	RF-1	
L12	Fil. Choke		19-1000	BC-561	4602	VP-9	1 Microhenry
L13	2nd FM IF	EI-957J	16-3487	FM-254	1463		
L14	2nd AM IF	1655-19	16-6758	BC-353	12-C2	RF-2	
L15	Fil. Choke		19-1000	BC-561	4602	VP-9	1 Microhenry
L16	3rd FM IF	EI-957J	16-3487	FM-254	1463		
L17	3rd AM IF	1655-19	16-6758	BC-353	12-C2	RF-2	
L18	Fil. Choke		19-1000	BC-561	4602	VP-9	1 Microhenry
L19	Cathode Choke		19-1000	BC-561	4602	VP-9	1 Microhenry
L20	Discriminator	ER-640J	17-3498	FM-255	1465		

① IRC Part #CLA

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

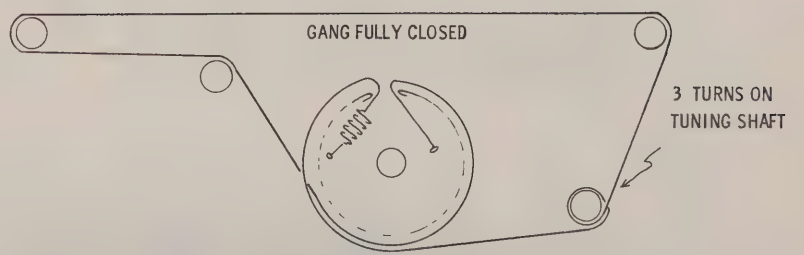
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA GROMMES PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.43A	280 VCT @.055A	6.3V @4.1A			P-3048				

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA GROMMES PART No. FUSE	GROMMES PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1A 250V			312001. (3AG 1A 250V)	342001	AGC1	HKP



DIAL CORD STRINGING

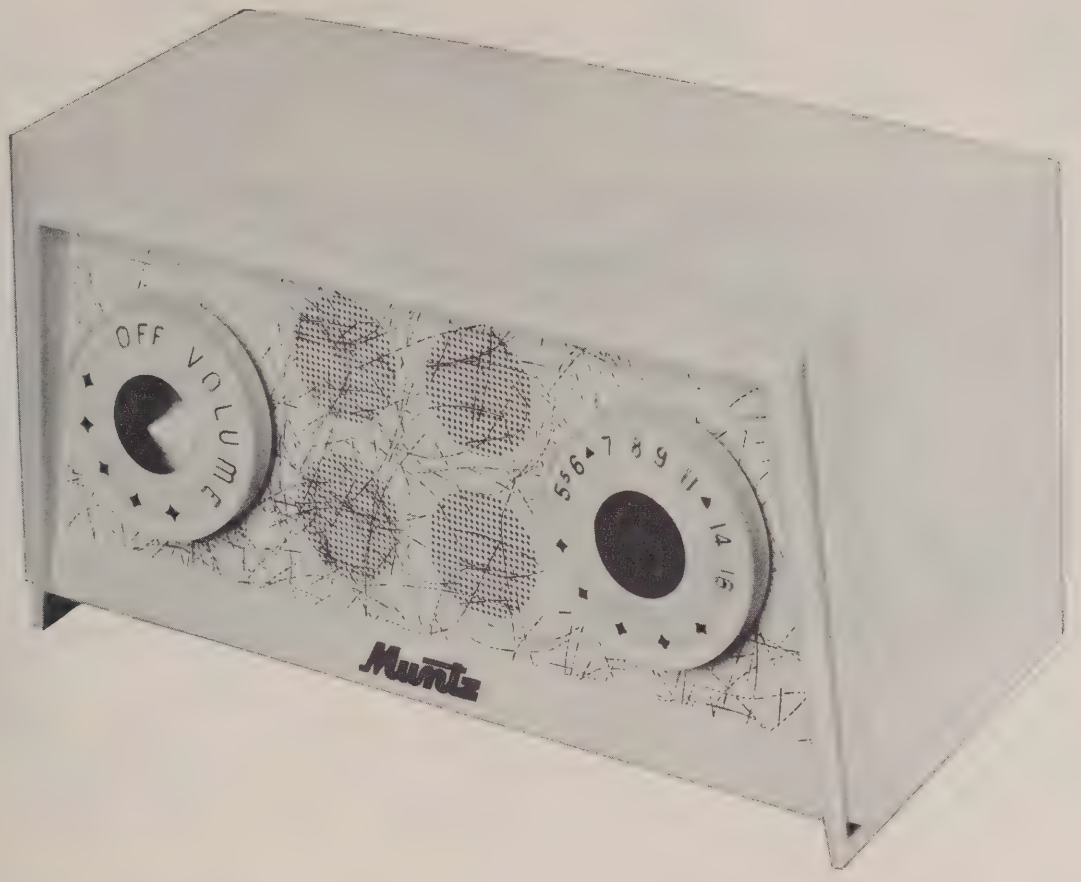
PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MUNTZ
MODEL R-10

MUNTZ
MODEL R-10



MUNTZ
MODEL R-10

TRADE NAME	Muntz Model R-10
MANUFACTURER	Muntz TV Inc., 1000 Grey Ave., Evanston, Illinois
TYPE SET	AC - DC Operated AM Receiver
TUBES	Four
POWER SUPPLY	110 - 120 Volts AC - DC RATING 25 Watts, .28 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535 - 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-.

Suggested alignment tools:
A1, A2..... General Cement #8282, 8606, 8606L, 9089
Walsco #2515, 2520, 2522, 2526
A3, A4..... General Cement #5004, 5008, 5015, 5016, 9105, 9106
Walsco #2515, 2520, 2523

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	Highside to pin 1 (grid) of 12AU6 (V1). Low side to B -.	455KC (400∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.	"	"	1620KC	"	"	A3	"
3.		Loop	1400KC	Tune for 1400KC signal	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 428 FOLDER 9

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AU6	
V2	Det. - AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V3	Output	50C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MUNTZ PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150		PRS150V402	BBRT44215	TCT3114	TDLT-3	FMT-310	TVA-3448
B	20	150		020					
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MUNTZ PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
R2	100			SI100	D6-101	LT6T1	UC-531	5GA-T1	
R3	56			SI56	D6-560	LT6Q56	UC-5456	5GA-Q56	
R4	56			SI56	D6-560	LT6Q56	UC-5456	5GA-Q56	
R5	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
R6	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	①
R7	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

① Some versions may use .022mfd in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MUNTZ PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2.5meg	½	VC-8007	B-83*	A47-2.5meg-S	Q11-239	U255	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	

* Use KR with CRL "Red Label" controls and KB with "Blue Label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

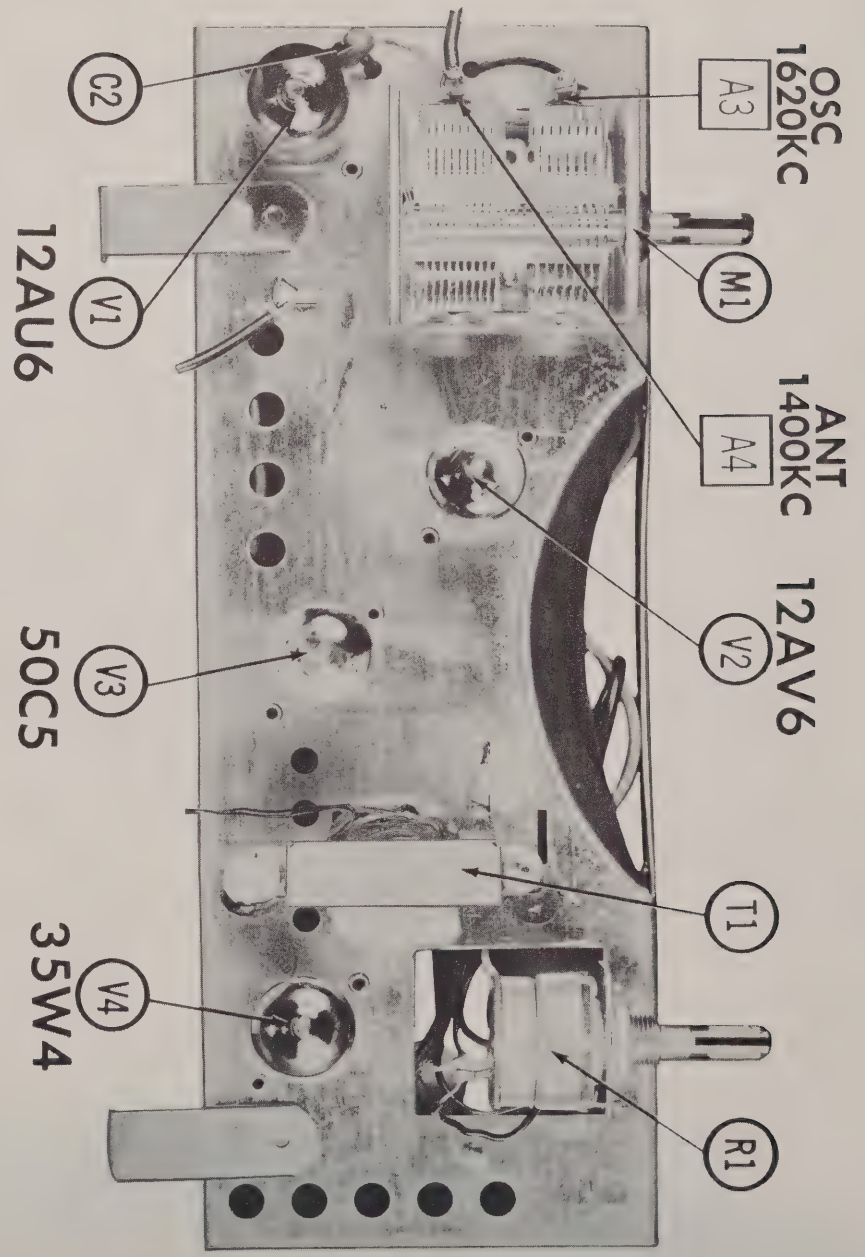
ITEM No.	RATING OHMS	RATING WATT	MUNTZ PART No.	NOTES
R2	2.7meg			
R3	180Ω			
R4	2200Ω			

ITEM No.	RATING OHMS	RATING WATT	MUNTZ PART No.	NOTES
R5	22Ω			
R6	68Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MUNTZ PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loop Ant.						
L2	Osc. Coil						
L3	IF Pri.						
L4	IF Sec.						

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MUNTZ PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2200Ω	3-4Ω	TA-8003	Z1101	A-3025	AU-605	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MUNTZ PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	SK-0034	4A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MUNTZ PART No.	REPLACEMENT DATA	
K1	Audio Coupling	250mmf, 220mmf 2000mmf, 5000mmf 470K, 470K 6.8meg		Aerovox Centralab Cornell-Dubilier Sprague	PA-113-1 PC-150 116TM1 DT-4

MISCELLANEOUS

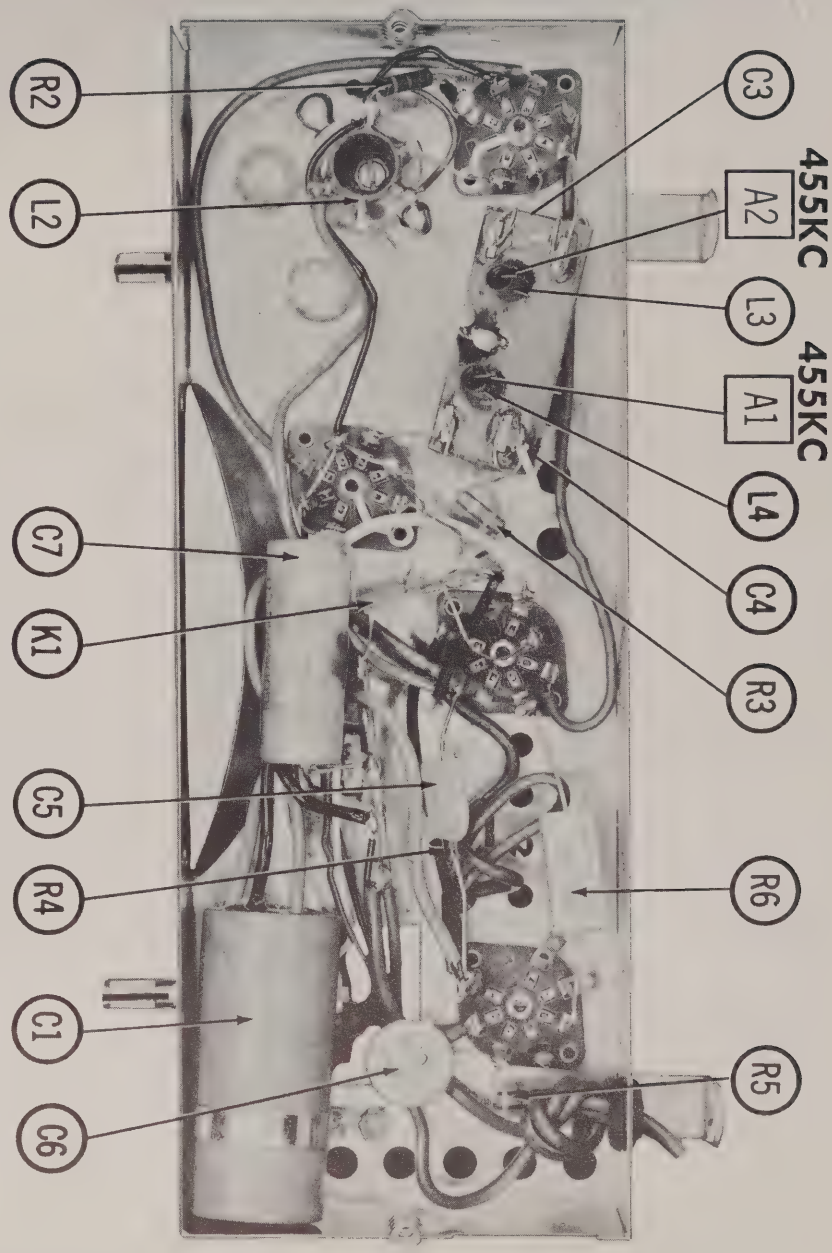
ITEM No.	PART NAME	MUNTZ PART No.	NOTES
M1	Tuning Cap.		2 Gang, (Ant. 7 - 276mmf, Osc. 8 - 105mmf)

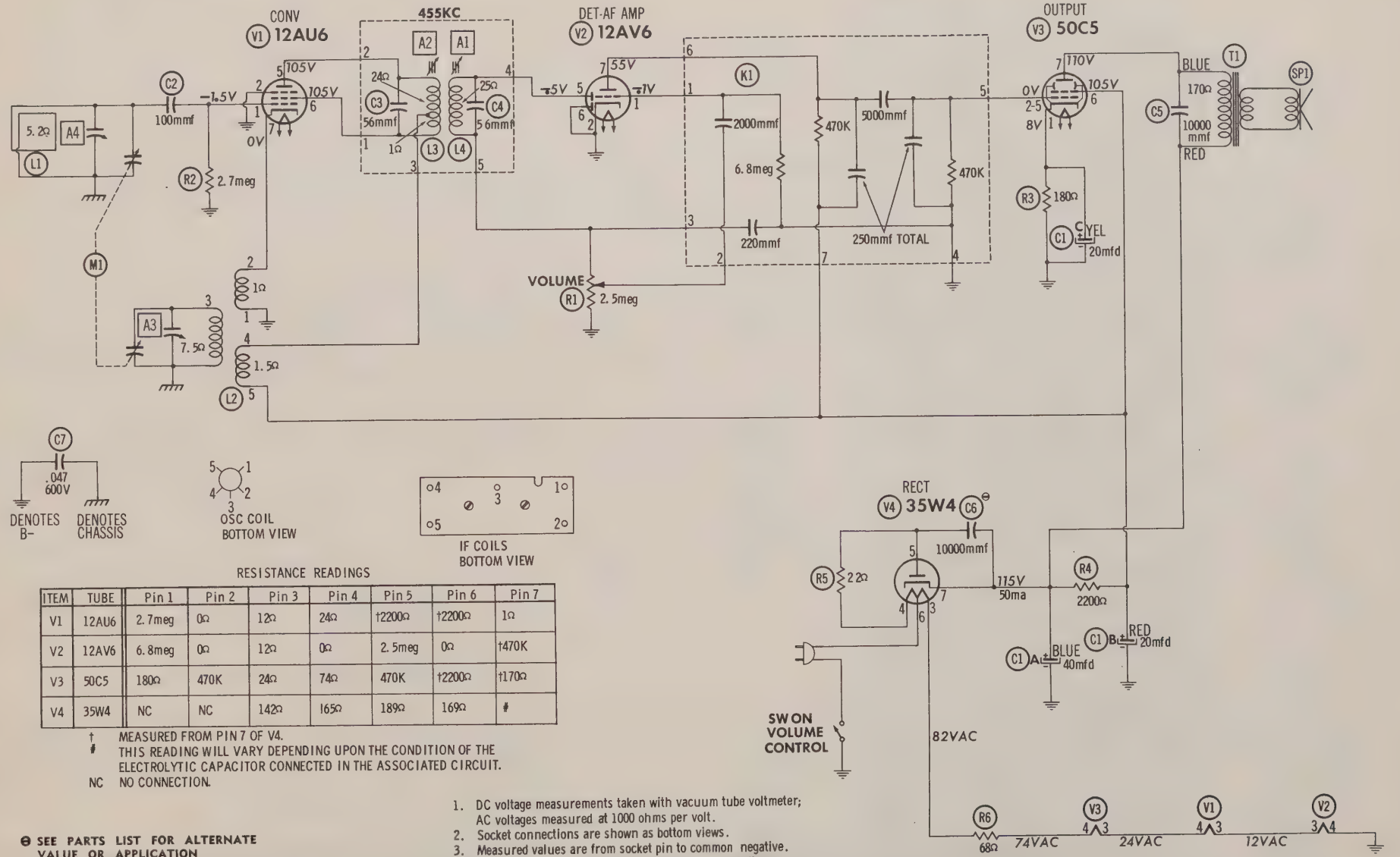
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	2.7meg	0Ω	12Ω	24Ω	†2200Ω	†2200Ω	1Ω
V2	12AV6	6.8meg	0Ω	12Ω	0Ω	2.5meg	0Ω	†470K
V3	50C5	180Ω	470K	24Ω	74Ω	470K	†2200Ω	†170Ω
V4	35W4	NC	NC	142Ω	165Ω	189Ω	169Ω	#

† MEASURED FROM PIN 7 OF V4.
# THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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MUNTZ MODEL R-10

PHOTOFACT* Folder
*TRADE MARK

OLYMPIC MODEL 544

OLYMPIC MODEL 544

TRADE NAME	Olympic Model 544
MANUFACTURER	Olympic Radio & Tel. Corp., 34-01 38th Ave., Long Island City 1, N.Y.
TYPE SET	AC-DC Operated AM Receiver
TUBES	Five
POWER SUPPLY	110-120 Volts AC-DC — RATING 26 Watts, .28 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1650KC

OLYMPIC MODEL 544

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Suggested alignment tools: A1, A2, A3, A4 ..... General Cement #5009, 8195, 8274, 8275, 8728, 8987
Walsco #2531
A5, A6 ..... General Cement #5004, 5008, 5009
Walsco #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to antenna stator lug of tuning gang. Low side to B-.	455KC (400∿ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.	"	"	1650KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2 and 3.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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H848

SET 428 FOLDER 10

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	70	150	150-135 ①	PRS150V8040	BBRT53215	WD220	TDLT-6	FMT-315	TVA-2460
B	30	150							

* Some versions may use Part #150-107.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	200	152-104	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C3	100		156-102	SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C4	.01	400	152-103	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C5	10000		158-102	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C6	.05	200	152-104	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	①
C7	.05	400	152-111	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C8	.1	400	152-108	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	

① Some versions may use .02mfd in this application (Part #152-102).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	120-106	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	

* Use KR with CRL "red label" controls and KB with "blue label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

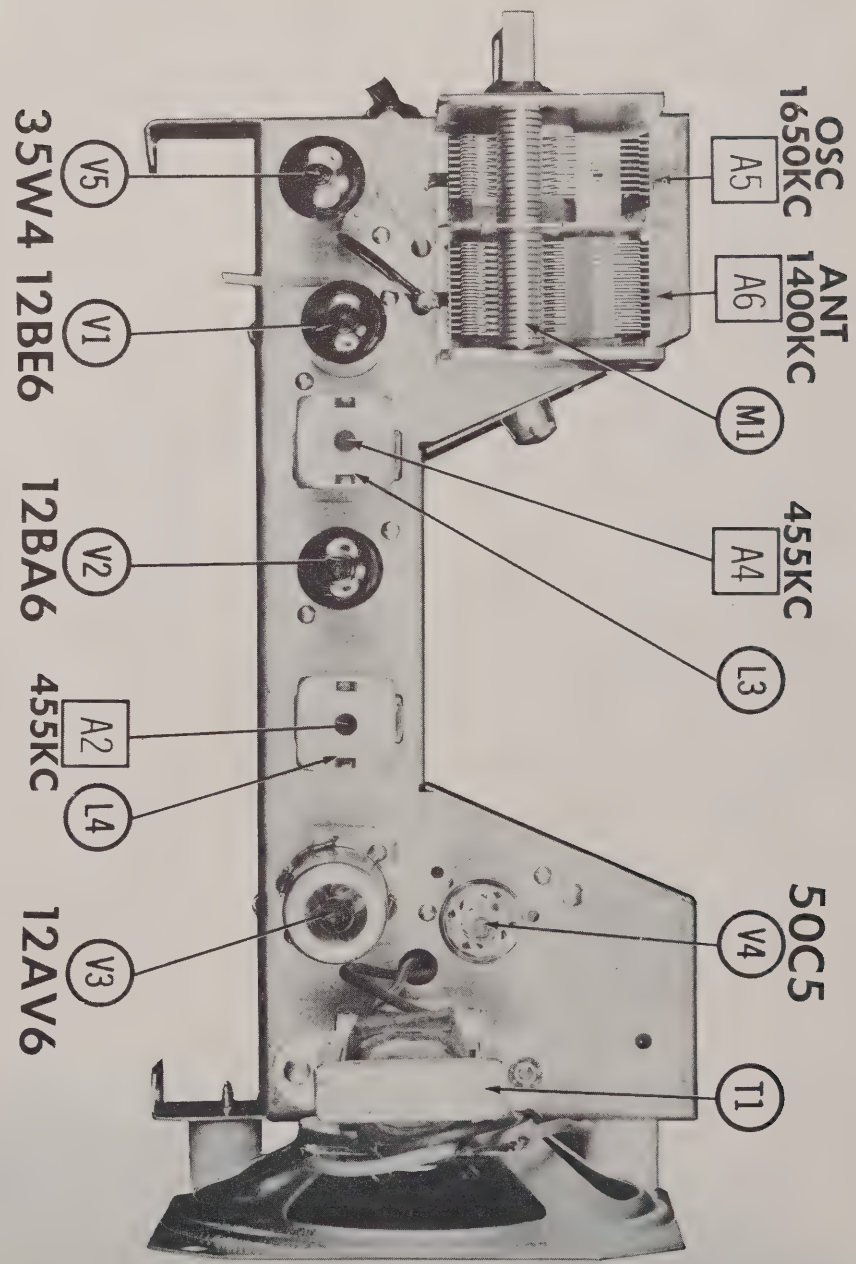
ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R2	22K			
R3	270Ω		180-131	
R4	2.2meg		180-107	

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R5	6.8meg		180-135	
R6	150Ω		180-111	
R7	2200Ω	1	180-124	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		OLYMPIC PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loop Ant.	134-111					Includes cabinet back
L2	Osc. Coil	136-125B					
L3	Input IF	130-114					
L4	Output IF	130-114					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2400Ω	6-8Ω	Part of SP2							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	175-122	5AIR	① Includes output transformer.
SP2	4"	PM	3-4Ω	175-131 ①	4A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA	
K1	Audio Coupling Unit	5000mmf, 250mmf, 250K, 470K	166-109	Aerovox Centralab Cornell-Dubilier Sprague	PA-112-2 PC-71 112TM2 T-4

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M1	Tuning Cap.	160-110	2 Section (Ant. 34-201mmf, Osc. 34-200mmf)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

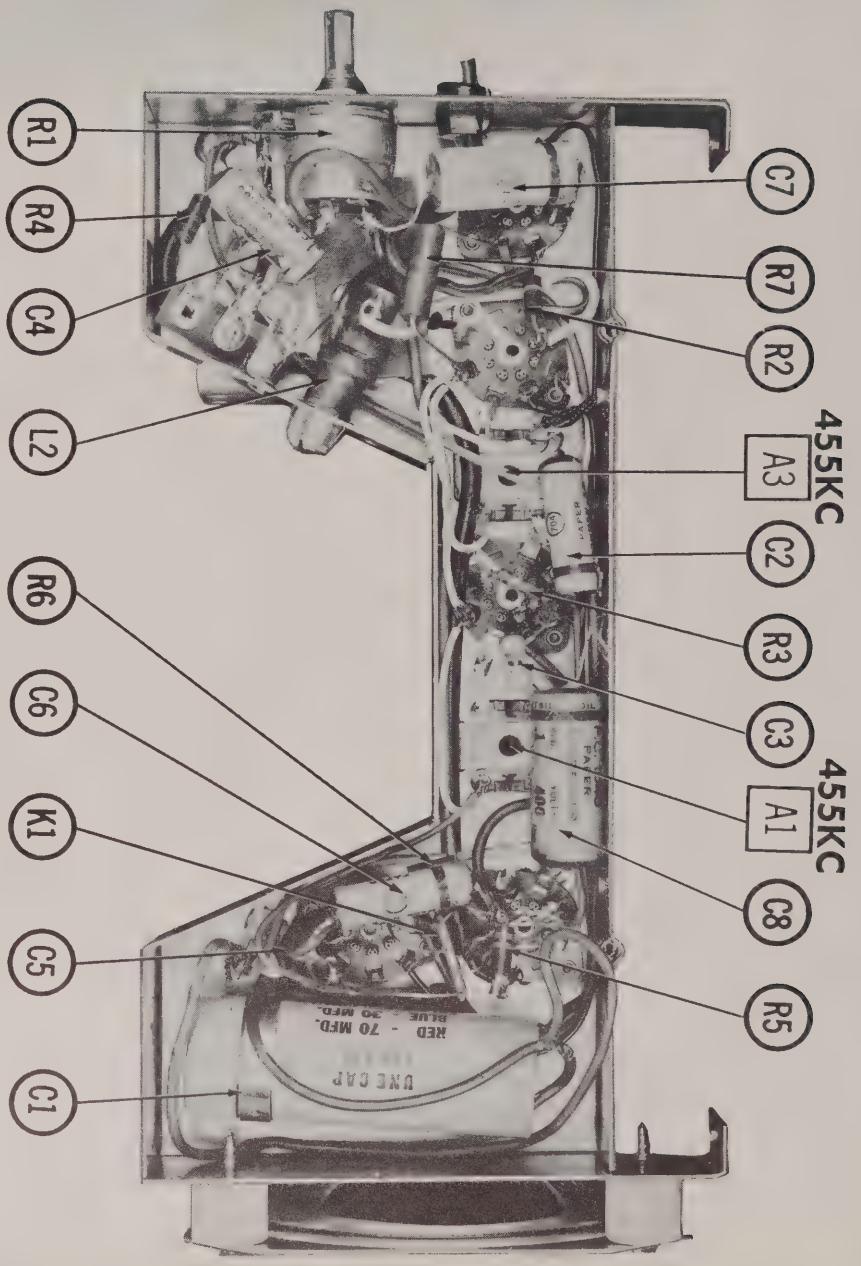
NAME	PART NO.	DESCRIPTION
Knob	220-124	Tuning
Knob	220-104	Off-On-Volume
Cabinet	290-109	

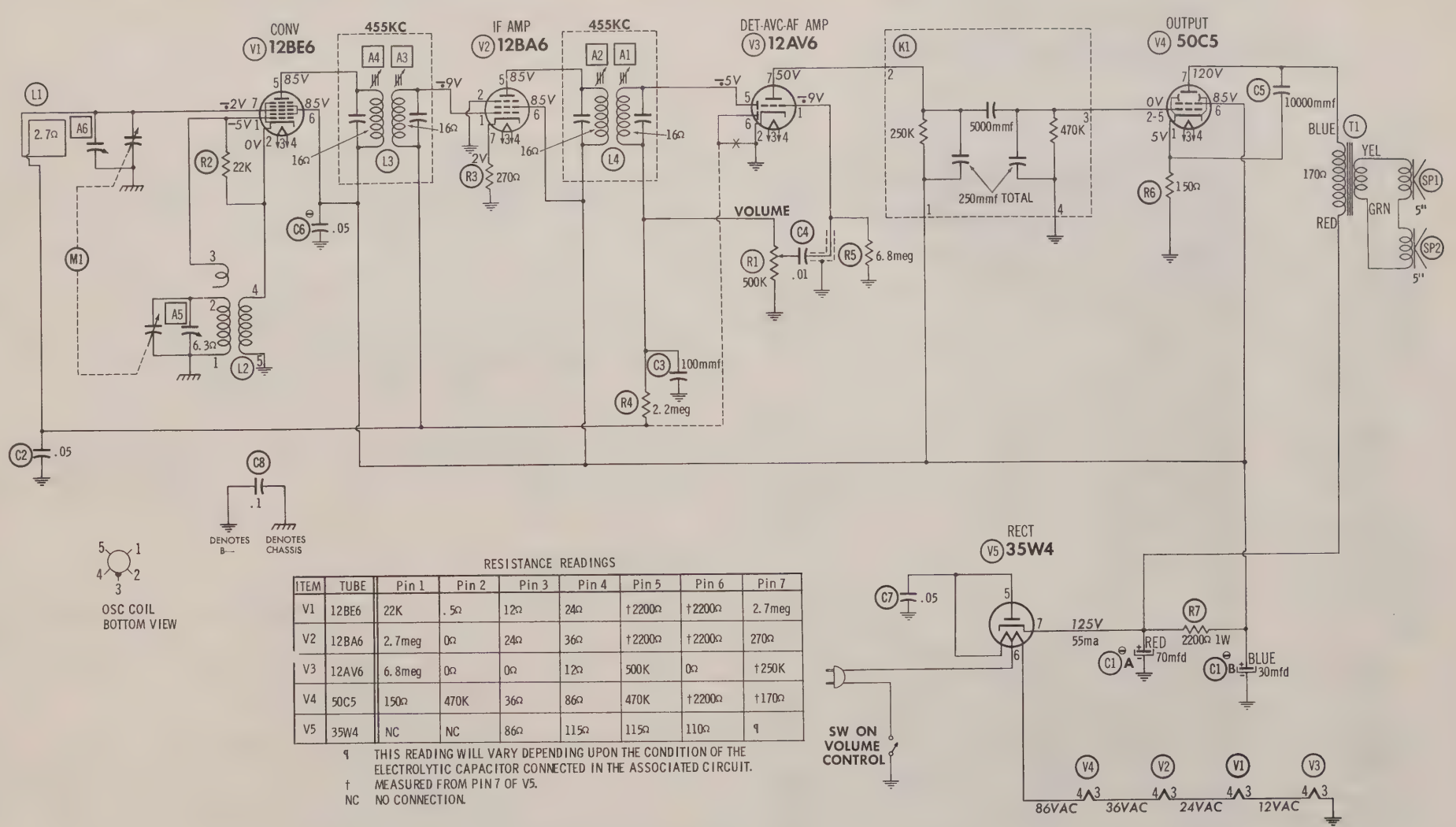
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





OSC COIL
BOTTOM VIEW

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.5Ω	12Ω	24Ω	†2200Ω	†2200Ω	2.7meg
V2	12BA6	2.7meg	0Ω	24Ω	36Ω	†2200Ω	†2200Ω	270Ω
V3	12AV6	6.8meg	0Ω	0Ω	12Ω	500K	0Ω	†250K
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†2200Ω	†170Ω
V5	35W4	NC	NC	86Ω	115Ω	115Ω	110Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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OLYMPIC MODEL 544

PHOTOFACT* Folder

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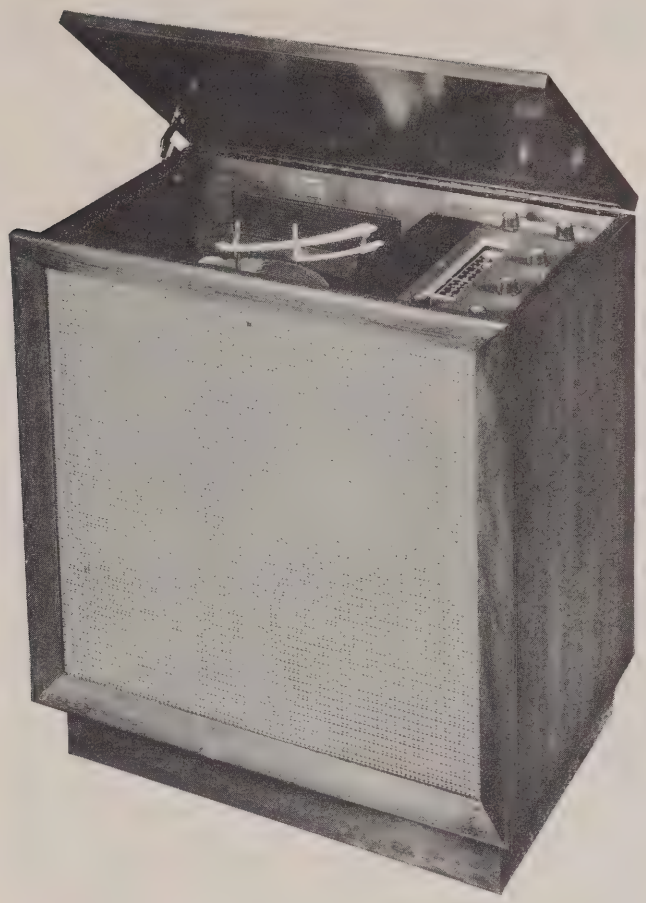
PILOT
MODEL PT-1031

PILOT
MODEL PT-1031

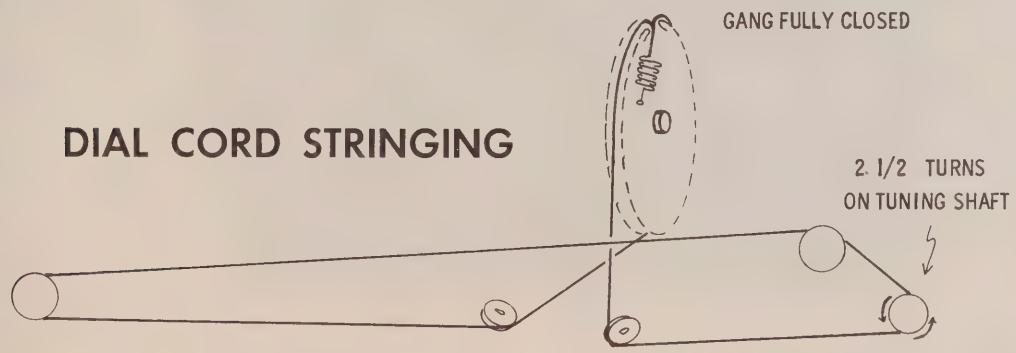


PILOT
MODEL PT-1031

TRADE NAME	Pilot Model PT-1031		
MANUFACTURER	Pilot Radio Corp., 37-06 36Th Street, Long Island City 1, N. Y.		
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer		
TUBES	Eleven		
POWER SUPPLY	105-125 AC-60 Cycles	RATING	.88 Amp. @117 Volts AC (90 Watts) FM
TUNING RANGE--BROADCAST	535-1700KC	FREQ. MOD.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #108-33--SEE GARRARD RC-121 Mark II--PHOTOFACT SET 421 FOLDER 7.

DIAL CORD STRINGING



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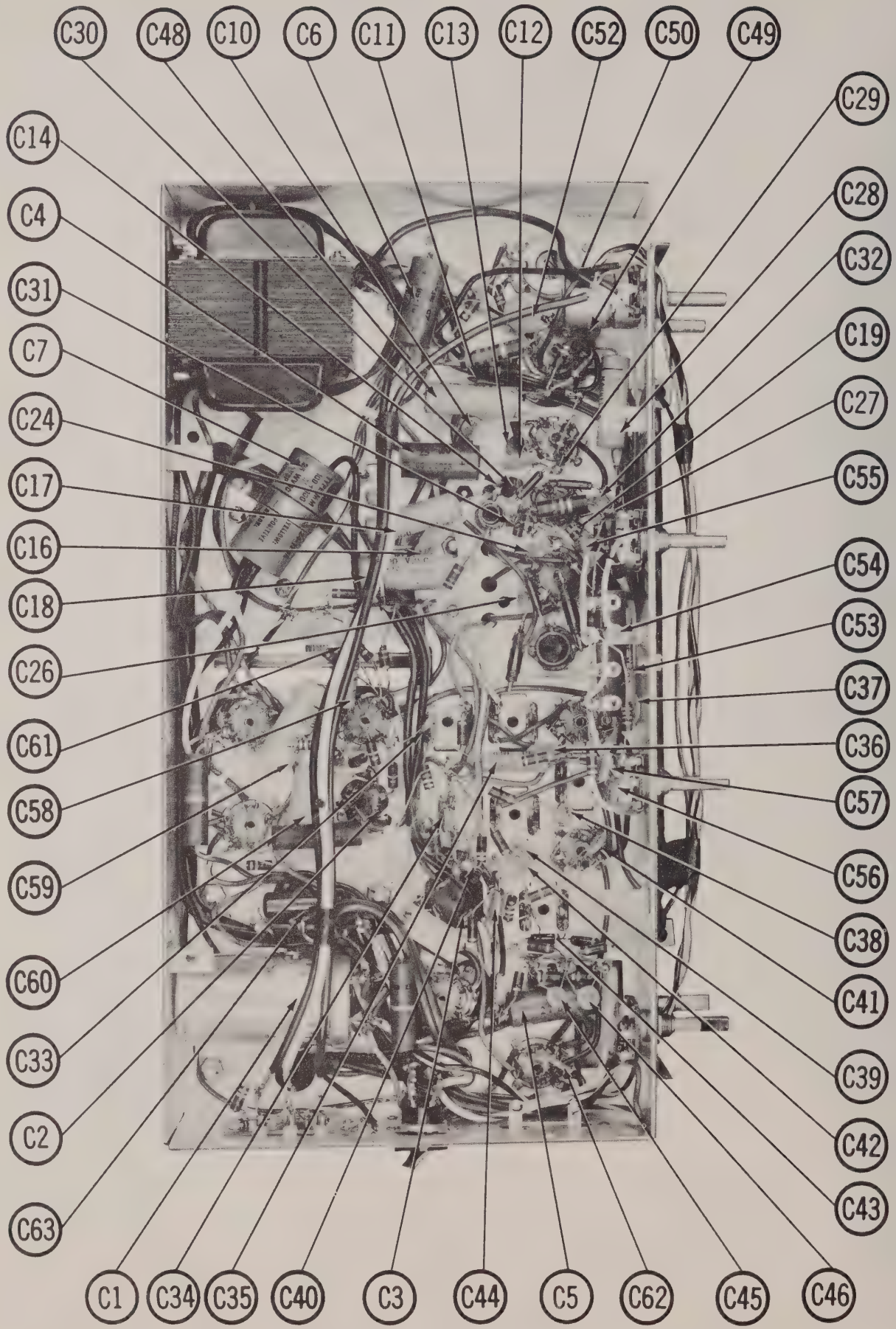
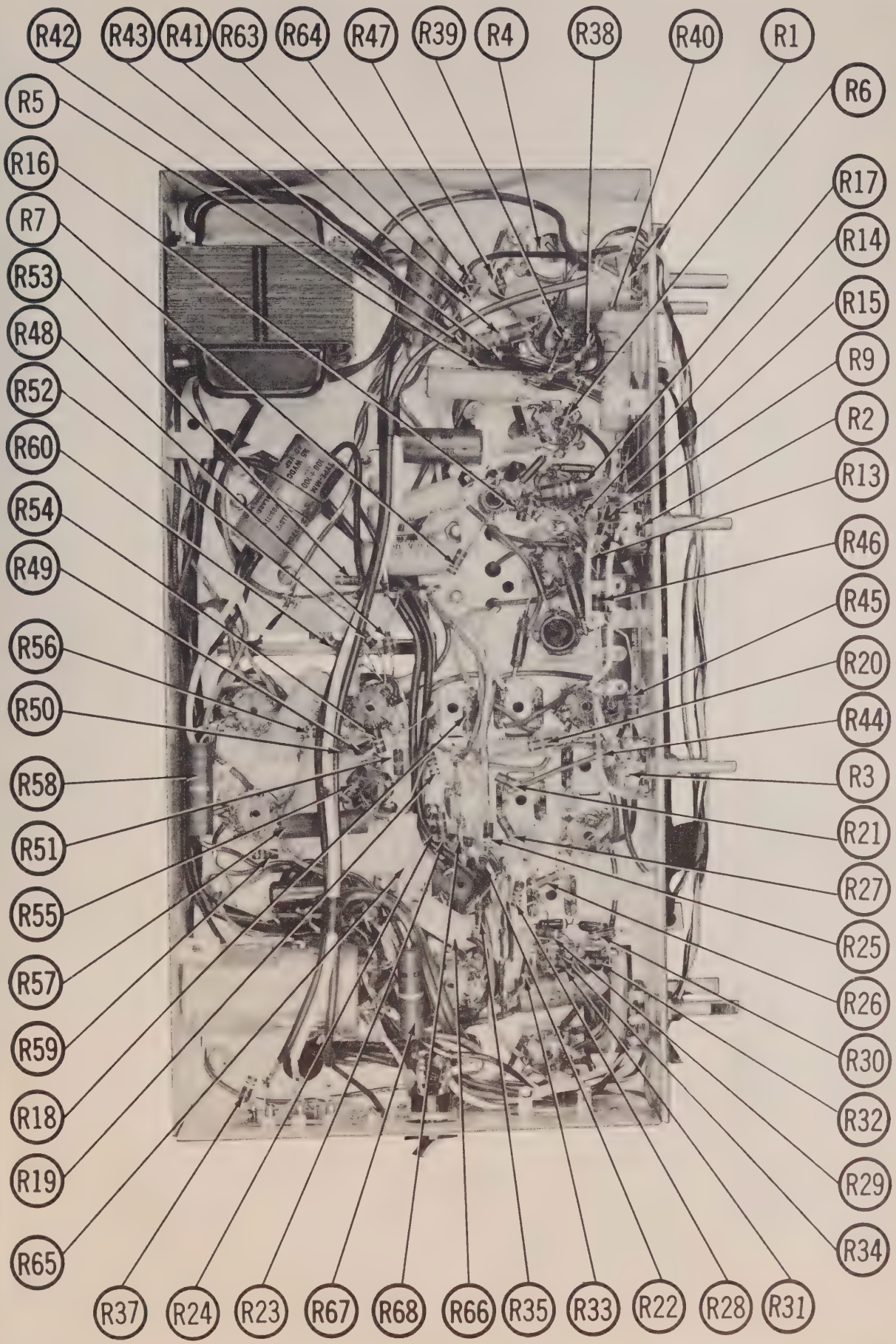
H713

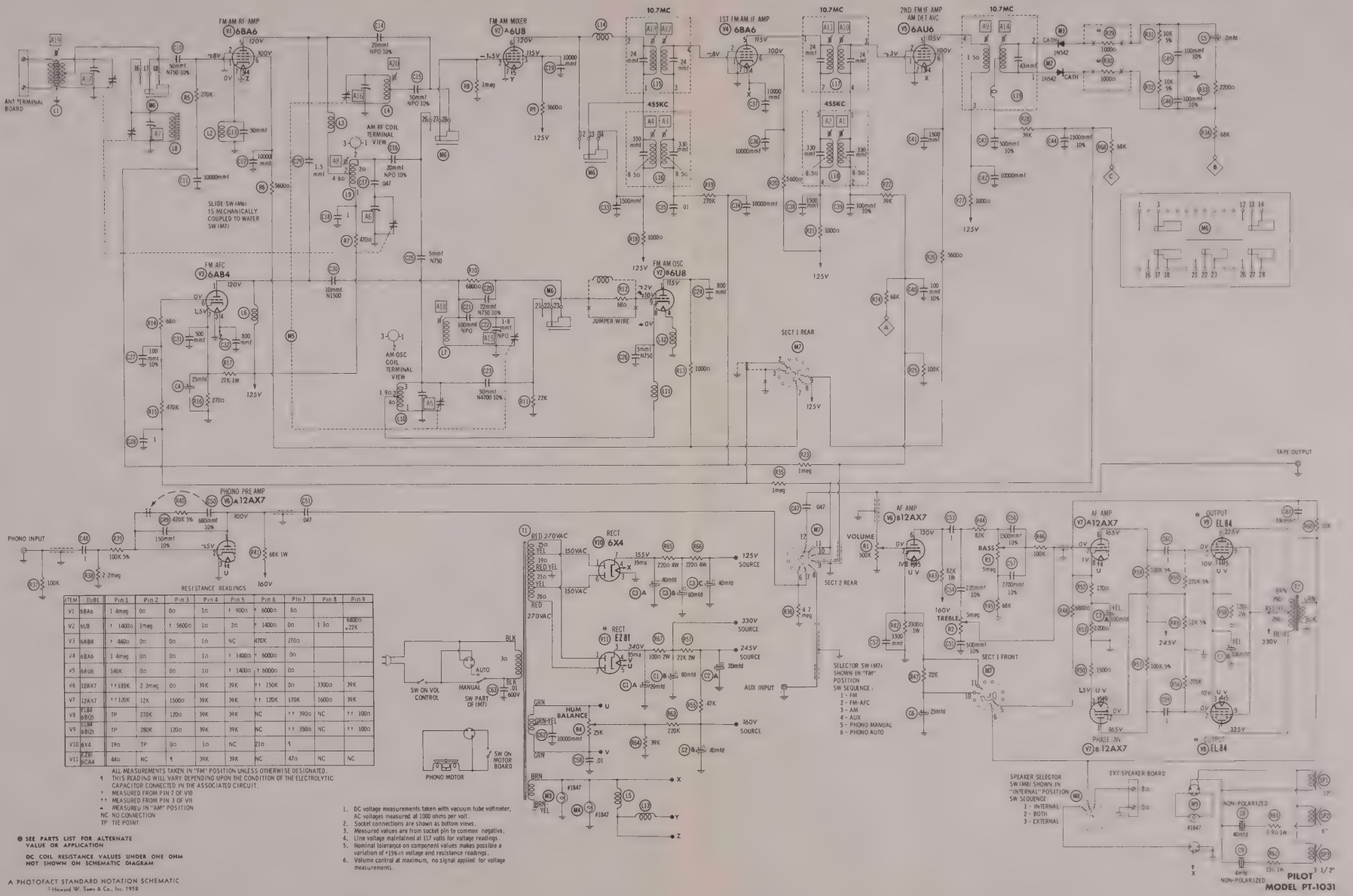
SET 428 FOLDER 11



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	1.4meg	0Ω	0Ω	1Ω	† 900Ω	† 6000Ω	8Ω		
V2	6U8	† 1400Ω	1meg	† 5600Ω	1Ω	2Ω	† 1400Ω	0Ω	1.3Ω	680Ω ±22K
V3	6AB4	† 440Ω	0Ω	0Ω	1Ω	NC	470K	270Ω		
V4	6BA6	1.4meg	0Ω	0Ω	1Ω	† 1400Ω	† 6000Ω	0Ω		
V5	6AU6	140K	0Ω	0Ω	1Ω	† 1400Ω	† 6000Ω	0Ω		
V6	12AX7	†† 835K	2.3meg	0Ω	39K	39K	†† 150K	0Ω	3300Ω	39K
V7	12AX7	†† 120K	12K	1500Ω	39K	39K	†† 120K	470K	1600Ω	39K
V8	EL84 6BQ5	TP	270K	120Ω	39K	39K	NC	†† 390Ω	NC	†† 100Ω
V9	EL84 6BQ5	TP	280K	120Ω	39K	39K	NC	†† 350Ω	NC	†† 100Ω
V10	6X4	190	TP	0Ω	1Ω	NC	21Ω	¶		
V11	EZ81 6CA4	44Ω	NC	¶	39K	39K	NC	47Ω	NC	NC

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 7 OF V10
†† MEASURED FROM PIN 3 OF V11
→ MEASURED IN "AM" POSITION
NC NO CONNECTION
TP TIE POINT

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.1mfd	High side to Pin 2 (grid) of 6U8 (V2). Low side to chassis.	455KC (400 ∿ Mod.)		Tuning gang fully open	DC probe to point (A). Common to chassis	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1500KC	"	1500KC	"	A5, A6, A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	600KC	"	600KC	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output while rocking tuning gang. Repeat Steps 2 & 3.

FM IF ALIGNMENT, USING AM SIGNAL GENERATOR & VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	200mmf	High side to Pin 2 (grid) of 6U8 (V2). Low side to chassis.	10.7 MC (Unmod.)	FM	Point of non-interference	DC probe to to point (B). Common to chassis	A9, A10, A11, A12, A13	Adjust for maximum deflection
5	"	"	"	"	"	DC probe to point (C). Common to chassis	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR & OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	200mmf	High side to Pin 2 (grid) of 6U8 (V2). Low side to chassis.	10.7MC (450KC SWP)	FM	Point of non-interference	Vert. amp to point (B). Low side to chassis.	A9, A10, A11, A12, A13	Disconnect stabilizing capacitor C5. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. amp to point (C). Low side to chassis.	A14	Reconnect stabilizing capacitor C5. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
6.	270Ω Carbon Resistor	Across FM Antenna Terminals	106MC (Unmod.)	FM (AFC off)	106MC	DC probe to point (B). Common to chassis.	A15, A16, A17	Adjust for maximum deflection.
7.	"	"	90MC	"	90MC	"	A18, A19, A20	"

FIG. 1

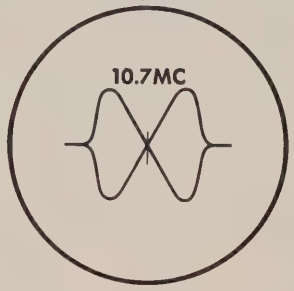
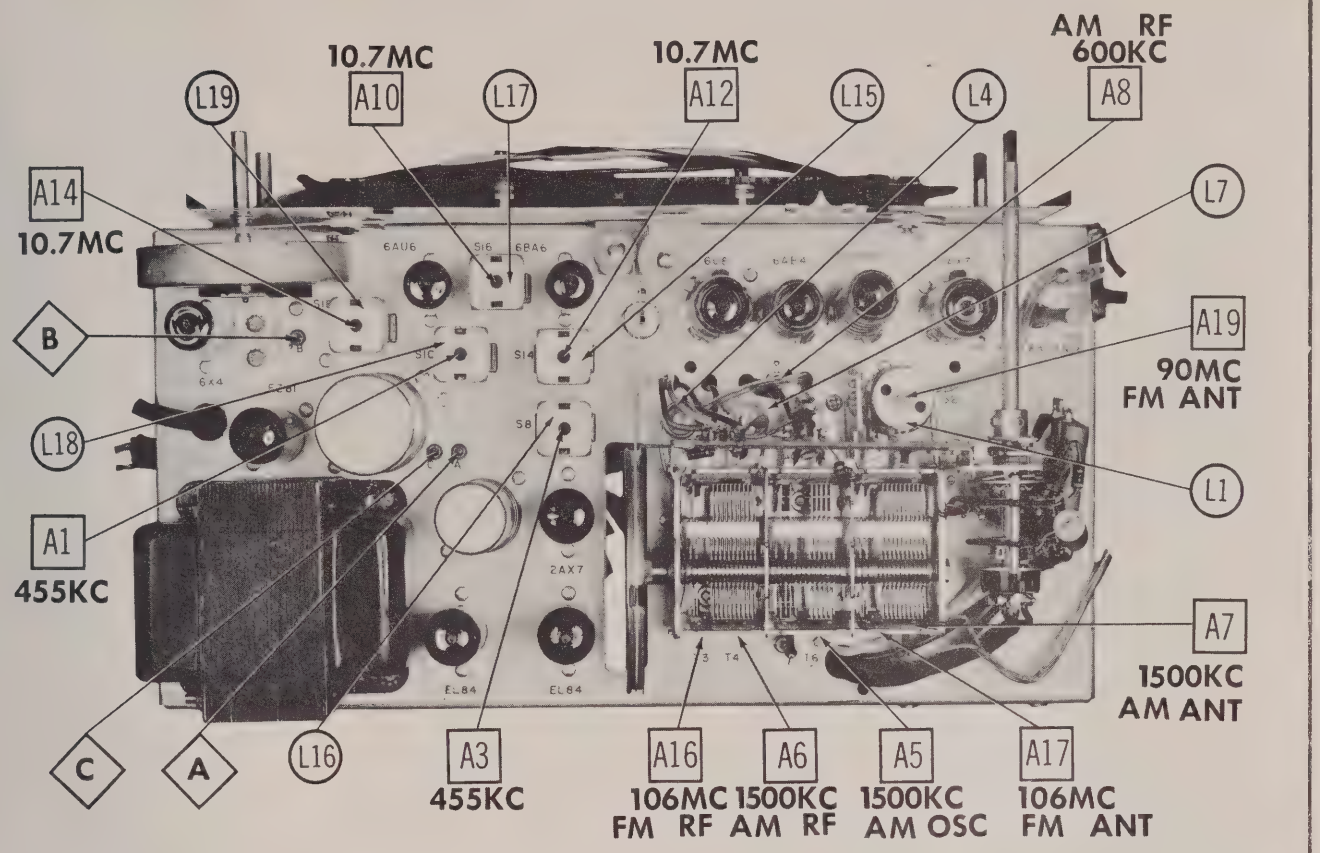
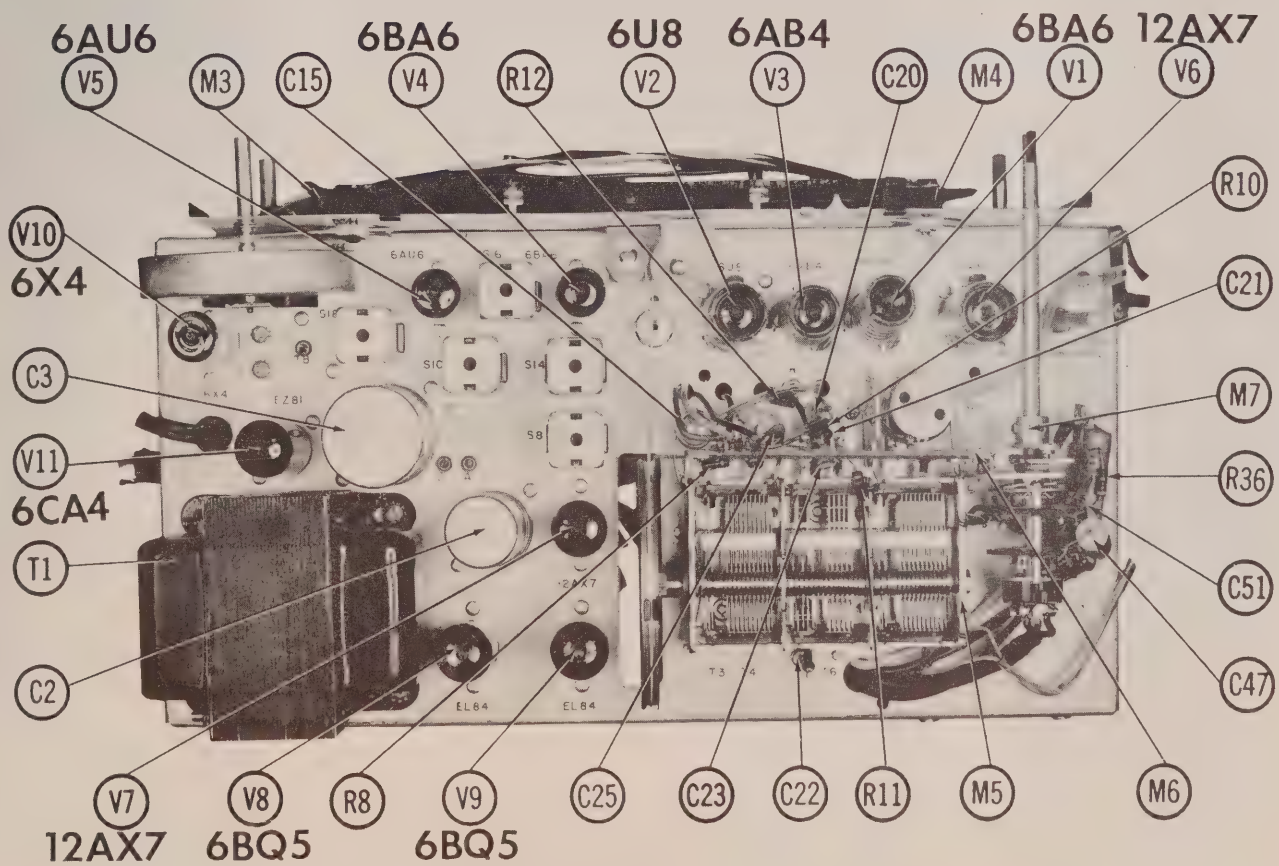


FIG. 2

CHASSIS STAMP	ALIGN #	CHASSIS STAMP	ALIGN #	CHASSIS STAMP	ALIGN #	CHASSIS STAMP	ALIGN #
S1	A18	S8	A3	S15	A11	T2	A7
S2	A19	S9	A2	S16	A10	T3	A16
S3	A20	S10	A1	S17	A9	T4	A6
S5	A8	S13	A13	S18	A14	T6	A5
S7	A4	S14	A12	T1	A17		



CHASSIS TOP VIEW



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM-AM RF Amp.	6BA6	
V2	FM-AM Mixer - FM-AM Osc.	6U8	
V3	FM AFC	6AB4	
V4	1st FM-AM IF Amp.	6BA6	
V5	2nd FM IF Amp. - AM Det. - AVC	6AU6	
V6	Phono Preamp. -AF Amp.	12AX7	
V7	AF Amp. - Phase Inv.	12AX7	
V8	Output	EL84/ 6BQ5 ①	
V9	Output	EL84/ 6BQ5 ①	
V10	Rectifier	6X4	
V11	Rectifier	EZ81/ 6CA4 ①	

① Domestic type listed may not be directly interchangeable in some instances.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲20	350	24-171	AFH2-45-10	B0324	FP227.4	TMT-25	D-197	TVL-2633
B	▲80	350							
C2A	■20	350	24-172	AFH3-28-30	C0225	FP330.7		T-107	TVL-3638.8
B	▲40	350							
C3A	▲40	300	24-123	AFH3-25-50	C0194	FP375.5		Q-012	TVL-3583
B	■80	250							
C	▲40	250							
C4	25	25	24-50	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205
C5	2	50	24-82	SRE50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301
C6	25	25	24-50	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205
C7A	100	25	24-170	PRS150V100	BBRD101015	TCD2155		MT-02100	TVA-2464
B	100	25		100				MT-02100	
C8	40	25NP	24-161	NP-PRS150	BR8015 †	TC492 †	TD-80-150 †	MT-1580 †	R2238 *
				V40	BR8015 †	TC492 †	TD-80-150 †	MT-1580 †	
C9	4	50NP	22-176	NP-PRS50V4	BBR8-150 †	TC41 †	TD-8-150 †	MT-1508 †	R2415 *
					BBR8-150 †	TC41 †	TD-8-150 †	MT-1508 †	

† Connect negative leads together.
* Not normally in distributors stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C10	50					C10Q5U			N750 10%
C11	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C12	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C13	50			NPO-DI 50	DTZ-50	LI0Q5	UC-545		
C14	20			NPO-DI 20	DTZ-20	C10Q2C	ZT-542	5TCC-Q2	NPO 10%
C15	50			NPO-DI 50	DTZ-50	C10Q5C	ZT-545	5TCC-Q5	NPO 10%

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C16	20			NPO-DI 20	DTZ-20	C10Q2C	ZT-542	5TCC-Q2	NPO 10%
C17	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C18	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C19	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C20	22			N750-DI 22	DTN-22	C10Q22U		5TCU-Q22	N750 10%
C21	100			NPO-SI 100	DTZ-100	CTA6T1C	ZT-531	5TCC-T1	NPO
C22	1-8								NPO
C23	50								N4700 10%
C24	800			BPD-0008	DD-801	LI0T8		5GA-T8	
C25	5			N750-SI 5	DTN-5	C10V5C	NT-555	5TCUB-V5	N750
C26	5			N750-SI 5	DTN-5	C10V5C	NT-555	5TCUB-V5	N750
C27	100			NPO-DI 100	DD-101	LI0T1	ZT-531	5TCC-T1	10%
C28	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C29	1.5			NPO-SI 1.5	TCZ-1R5	CTA6V15C	ZT-5515	5TCCB-V15	
C30	10								N1500
C31	500			BPD-0005	DD-501	LI0T5	UC-535	5GA-T5	
C32	800			BPD-0008	DD-801	LI0T8		5GA-T8	
C33	1500			BPD-0015	DD-152	BYA10D15	DC5215	5HK-D15	
C34	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C35	.01	400		P488N-01	D6-103	CUB4SI	GEM-411	4TM-SI	
C36	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C37	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C38	1500			BPD-0015	DD-152	BYA10D15	DC5215	5HK-D15	
C39	100			NPO-DI 100	DD-101	LI0T1	ZT-531	5TCC-T1	10%
C40	100			NPO-DI 100	DD-101	LI0T1	ZT-531	5TCC-T1	10%
C41	1500			BPD-0015	DD-152	BYA10D15	DC5215	5HK-D15	
C42	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C43	500					5R5T5	MCB245	MS-35	10%
C44	1500					1R5D15	MCB456	MS-215	10%
C45	100			NPO-DI 100	DD-101	LI0T1	ZT-531	MS-31	10%
C46	100			NPO-DI 100	DD-101	LI0T1	ZT-531	MS-31	10%
C47	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C48	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C49	150			NPO-DI 150	D6-151	LI0T15	ZT-5315	MS-315	10%
C50	680				D6-681	1R5T68		MS-368	10%
C51	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C52	3300			BPD-0033	DD-332	BYA10D33	UC-5233	5GA-D33	
C53	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C54	220				DD-221	LI0T22		MS-322	10%
C55	500				D6-501	5R5T5	MCB245	MS-35	10%
C56	1500					1R5D15	MCB456	MS-215	10%
C57	2700					1R5D27		MS-227	10%
C58	.01	400		P488N-01	D6-103	CUB4SI	GEM-411	4TM-SI	
C59	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C60	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C61	330			BPD-00033	DD-331	LI0T33	UC-5333	5GA-T33	
C62	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C63	.01	600		P688N-01	D6-103	CUB6SI	GEM-611	6TM-SI	

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PILOT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	36-70	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	
R2A	5meg	½	37-38	B-88	A47-5meg-Z	Q13-141	U65	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	5meg	½	37-38	B-88	A47-5meg-Z	Q13-141	U65	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	25K	½	39-44	AB-26	A47-25K-S	B11-120	TA253L	Hum Balance
B	Shaft			AK-1	FKS-1/4	SK2	Not Req.	

* Use KR with CRL "Red Label" controls and KB with "Blue Label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PILOT PART No.	NOTES
	OHMS	WATT		
R5	270K			
R6	5600Ω			
R7	470Ω			
R8	1meg			
R9	5600Ω			
R10	6800Ω			
R11	22K			
R12	68Ω			
R13	1000Ω			
R14	68Ω			
R15	470K			
R16	270Ω			
R17	27K	1		
R18	1000Ω			
R19	270K			
R20	5600Ω			
R21	1000Ω			
R22	39K			
R23	1meg			
R24	68K			
R25	100K			
R26	5600Ω			
R27	1000Ω			
R28	39K			
R29	1000Ω			Note 1
R30	1000Ω			Note 1
R31	10K 5%			
R32	10K 5%			
R33	2200Ω			
R34	68K			
R35	1meg			
R36	4.7meg			

ITEM No.	RATING		PILOT PART No.	NOTES
	OHMS	WATT		
R37	100K			
R38	2.2meg			
R39	100K 5%			
R40	470K 5%			
R41	68K	1		
R42	3300Ω	1		
R43	82K	1		
R44	82K			
R45	68K			
R46	100K			
R47	22K			
R48	6800Ω			
R49	12K 5%			
R50	1500Ω			
R51	100K 5%			
R52	270Ω			
R53	2200Ω			
R54	100K 5%			
R55	47K			
R56	270K			
R57	22K	2		
R58	120Ω	2		
R59	270K 5%			
R60	10K			
R61	3.9Ω	1		
R62	10Ω	1		
R63	220K			
R64	39K			
R65	220Ω	4(WW)		
R66	220Ω	4(WW)		
R67	100Ω	2		
R68	68K			

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PILOT PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.	70-81					
L2	Cathode Choke	75-33	19-1004	SW-631	4529		5 Microhenries
L3	RF Choke	75-33	19-1004	SW-631	4529		5 Microhenries
L4	FM RF Coil	71-42					
L5	Fil. Choke	75-19	19-1001	BC-562	4604		1.5Microhenries
L6	RF Choke	75-33	19-1004	SW-631	4529		5 Microhenries
L7	FM Osc. Coil	72-77					
L8	Loop Stick	270-55					
L9	AM RF Coil	71-43					
L10	AM Osc. Coil	72-78					
L11	RF Choke	75-33	19-1004	SW-631	4529		5 Microhenries
L12	Fil. Choke	75-19	19-1001	BC-562	4604		1.5Microhenries
L13	Fil. Choke	75-19	19-1001	BC-562	4604		1.5Microhenries
L14	RF Choke	75-19	19-1001	BC-562	4604		1.5Microhenries

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PILOT PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L15	1st FM IF	273-151	16-3487	FM-254	1463		
L16	1st AM IF	273-129	16-6758	BC-352	12-C1	RF-1	
L17	2nd FM IF	273-151	16-3487	FM-254	1463		
L18	2nd AM IF	273-129	16-6758	BC-353	12-C2	RF-2	
L19	Ratio Det.	279-72	17-3497	FM-255	1465		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	PILOT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.88A	540VCT @.085A Taps @ 300VCT @.035A	6.3V @2.4A	55-65						
	SEC. 3									
	6.3VCT @3A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	PILOT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6400Ω CT	6-8Ω	56-56	Z1402 ①	A-2904①	AU-609①	A-3870 ①	22S58 ①	S-55X ①	① Drill New Mounting holes

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PILOT PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	41-43	12A6A	
SP2	6"	PM	3-4Ω	41-40	6A21	
SP3	3½"	PM	6-8Ω	41-44	3A15TZ7.4	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		PILOT PART No.	CBS PART No.	SYLVANIA PART No.	
M1	1N541	1N542	1N636	1N295	Ratio Detector (Pigtail)
M2	1N541	1N542	1N636	1N295	Ratio Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
M3	Lamp	68-10	#1847
M4	Lamp	68-10	#1847
M5	Tuning Cap.	26-60	AM-FM-3Gang, Ant. 23-488mmf, RF, 21-485mmf, Osc. 24-172mmf AM
M6	Switch	101-43	FM-FM AFC AM Band, 4P3T, Slide Type
M7	Switch	100-131	Function Selector, Rotary, Wafer Type
M8	Switch	100-132	Speaker Selector, Rotary, Wafer Type
M9	Lamp	68-10	#1847

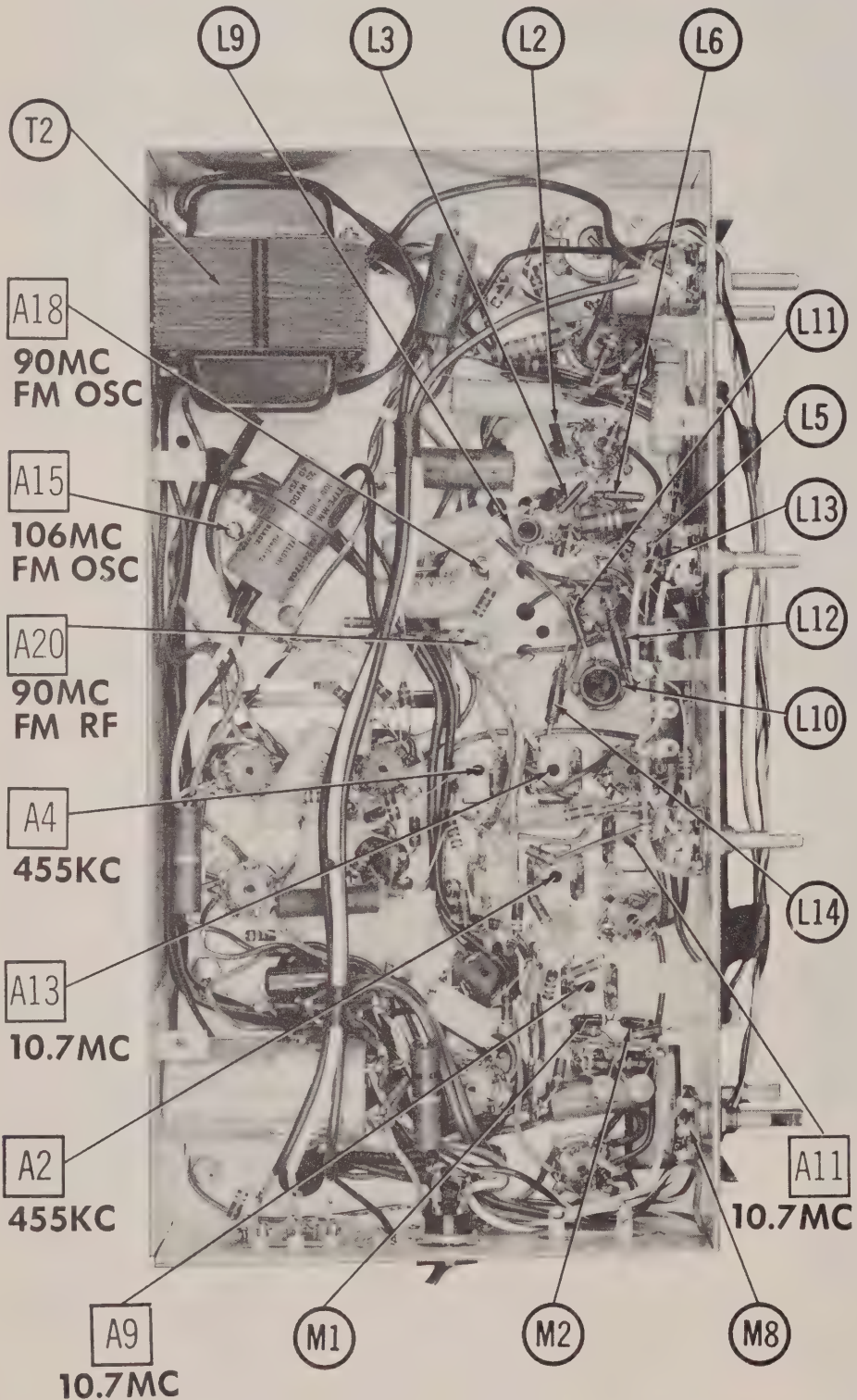
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



CHASSIS BOTTOM VIEW
ALIGN, INDUCTOR, & MISC IDENT

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

TRAV-LER MODELS 90-100, 90-105

TRAV-LER MODELS
90-100, 90-105

MODEL 90-105

TRAV-LER MODELS
90-100, 90-105

TRADE NAME	Trav-ler Models 90-100, 90-105		
MANUFACTURER	Trav-ler Radio & Tel. Corp., 571 W. Jackson Blvd., Chicago, Illinois		
TYPE SET	AC Operated FM-AM Tuner and Amplifier With 4 Speed Automatic Record Changer		
TUBES	Tuner: 7 Amp. : 4		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.86 Amp. @ 117 Volts AC (82 Watts) FM
TUNING RANGE - BROADCAST	535 - 1650KC	FREQ. MOD.	88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #RC-32 - SEE SIMILAR V-M1200A - PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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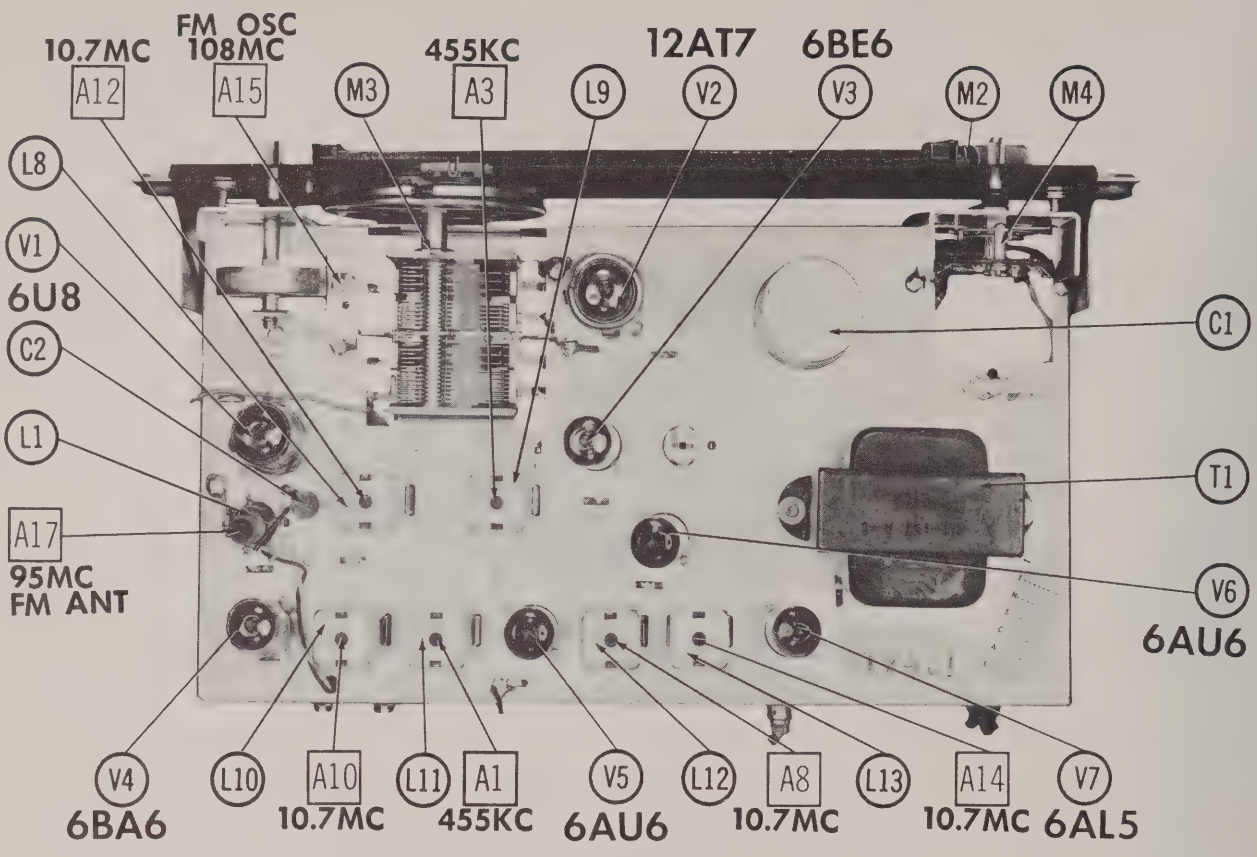
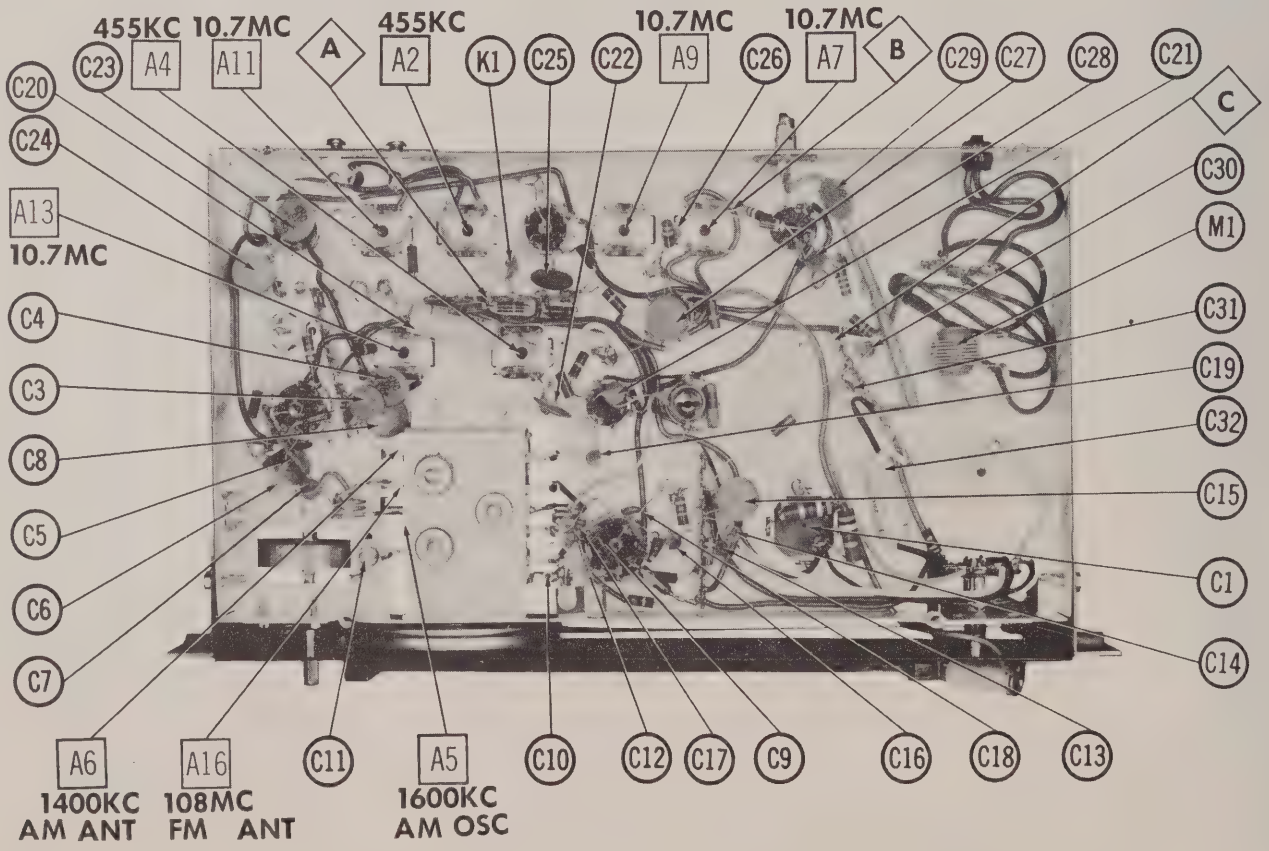
SET 428 FOLDER 12



TUNER CHASSIS - TOP VIEW



TUNER CHASSIS BOTTOM VIEW - ALIGN, CAPACITOR & MISC IDENT

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400~ Mod.)	AM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.		Loop	1600KC	"	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	Tune to 1400KC signal		A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	200mmf	High side to pin 9 (grid) of 6U8 (V1). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe thru 1meg to point (B). Common to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	200mmf	High side to pin 9 (grid) of 6U8 (V1). Low side to chassis.	10.7MC (450KC Swp.)	FM	Point of non-interference	Vert. Amp. thru 27K to point (B). Low side to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A14	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

Disconnect line cord antenna.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	270Ω Carbon Resistor	Across FM antenna terminals.	108MC (Unmod)	FM	108MC	DC probe to point (B). Common to chassis.	A15, A16	Adjust for maximum deflection.
7.	"	"	95MC	"	95MC	"	A17	"

FIG. 1

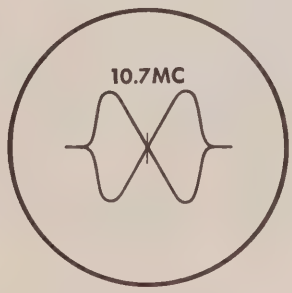


FIG. 2

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. - FM Mixer	6U8	
V2	FM Osc. - FM AFC	12AT7	
V3	AM Converter	6BE6	
V4	1st FM-AM IF Amp.	6BA6	
V5	2nd FM IF Amplifier - AM Det. - AVC	6AU6	
V6	FM Limiter	6AU6	
V7	Discriminator	6AL5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	TRAV-LER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	200		AFH4-02	D0020	FP320	TMT-19	T-085	R2677 *
B	■40	200				TC55	TD-30-250	MT-4530	
C	▲20	200							

* Not normally in distributors stock. Available through distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100			N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C3	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C4	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C5	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C6	220			DI 220	D6-221	L10T22		MS-322	10%
C7	100			N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C8	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C9	100			N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C10	68			NPO-SI 68	TCZ-68	CTA6Q68C		5TCC-Q68	NPO
C11									
C12	910							MS-391	
C13	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C14	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C15	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C16	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C17	2.2			NPO-SI 2.2	TCZ-2R2	CTA6V22C		5TCCB-V22	
C18	10			N750-DI 10	DTN-10	C10Q1U	NT-541	5TCU-Q1	N750
C19	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	①
C20	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C21	47			N750-DI 47	DTN-47	C10Q47U	NT-5447	5TCU-Q47	N750
C22	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C23	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C24	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C25	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C26	47			NPO-DI 47	DD-470	L10Q47		5TCC-Q47	10%
C27	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C28	100			N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C29	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C30	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C31	330			BPD-00033	DD-331	L10T33	UC-5333	5GA-T33	
C32	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	②

① Some versions may use 1000mmf in this application.
② Not used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R1	270K			
R2	68Ω			
R3	220Ω			
R4	2.2meg			
R5	15K			
R6	22K			
R7	10K			①
R8	100Ω			
R9	470K			
R10	47K			
R11	1meg			
R12	560Ω			
R13	2.2meg			
R14	22K			
R15	3900Ω			
R16	610Ω	1		②

RESISTORS (cont)

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R17	1000Ω			
R18	2.2meg			
R19	220K			
R20	1000Ω			
R21	100K			③
R22	15K			
R23	10K			
R24	1000Ω			
R25	100K			
R26	100K			
R27	33K			
R28	33K			
R29	390Ω	1		
R30	390Ω	1		

① Some versions may use 1000Ω in this application.
② Not used in some versions.
③ Some versions may use 220K in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TRAV-LER PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.						
L2	RF Choke			SW-631			4.7 Microhenries
L3	FM RF Coil						
L4	RF Choke		19-1002	SW-630			2.7 Microhenries
L5	FM Osc. Coil						
L6	Loop Stick						
L7	AM Osc. Coil		14-1055				
L8	1st FM IF Trans.		16-3487	FM-254	1463		
L9	1st AM IF Trans.		16-6758	BC-352	12-C1	RF-1	
L10	2nd FM IF Trans.		16-3487	FM-254	1463		
L11	2nd AM IF Trans.		16-6758	BC-353	12-C2		
L12	3rd FM IF Trans.		16-3487	FM-254	1463		
L13	Discriminator Trans.		17-3494	FM-253	1464		

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA						
	PRI.	SEC. 1	TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .28A	120V@ .040A Tap @ 6.3V@ 2.3A	PT-157	P9102	P-3045		PA8421	26R38	R-30X

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRAV-LER PART No.	REPLACEMENT DATA
K1	Detector RF Filter	100mmf, 100mmf, 47K		Aerovox PA-97-1 Centralab PC-50 Cornell-Dubilier 111TM1 Sprague D-1

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	TRAV-LER PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.042A		1234AH	T065	65A	

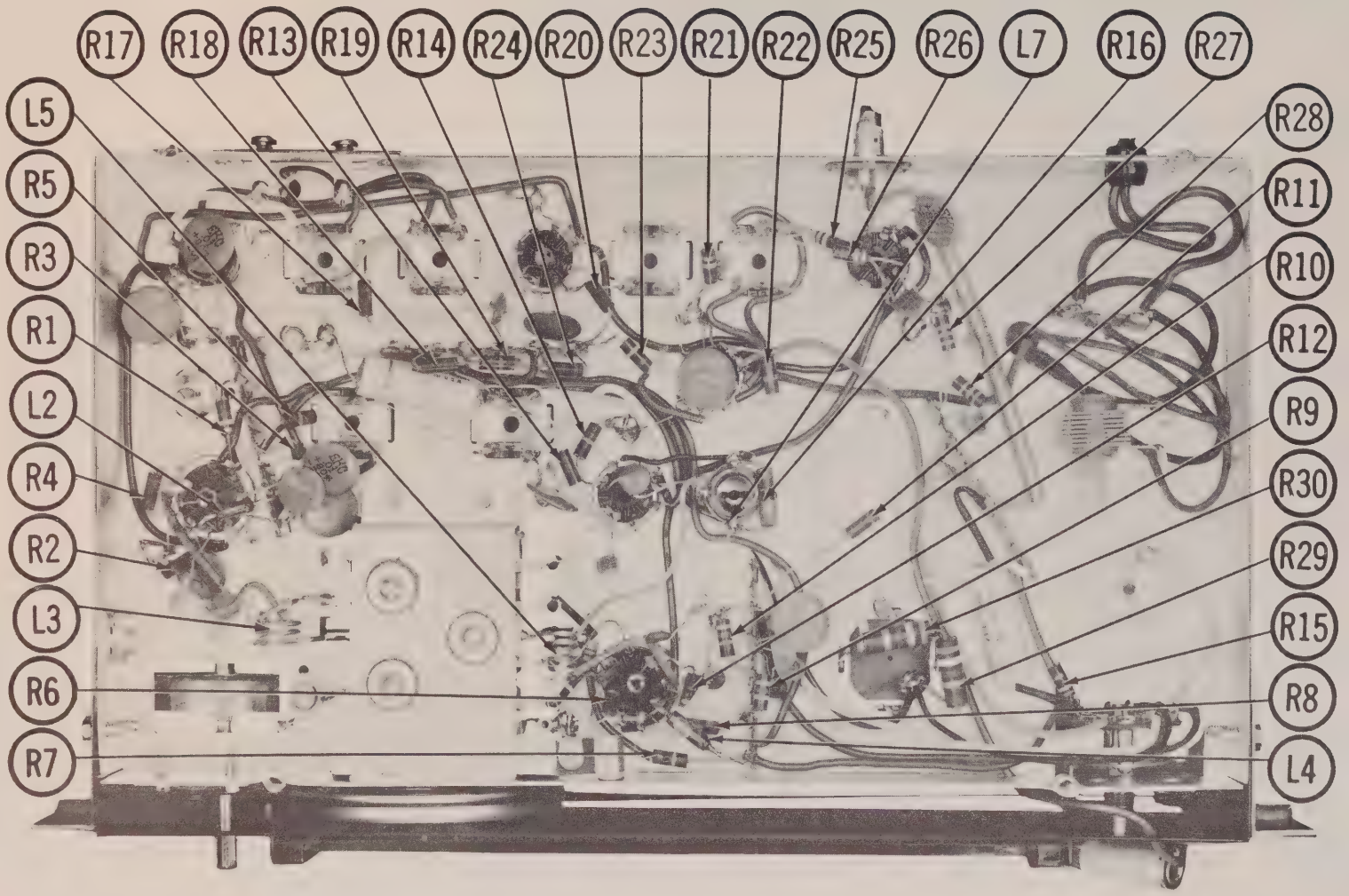
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M2	Lamp		#47
M3	Tuning Cap.		4 Gang, (AM Sections: Ant. 10-230mmf, Osc. 8-109mmf FM-FM AFC-AM, Rotary, Wafer Type
M4	Switch		

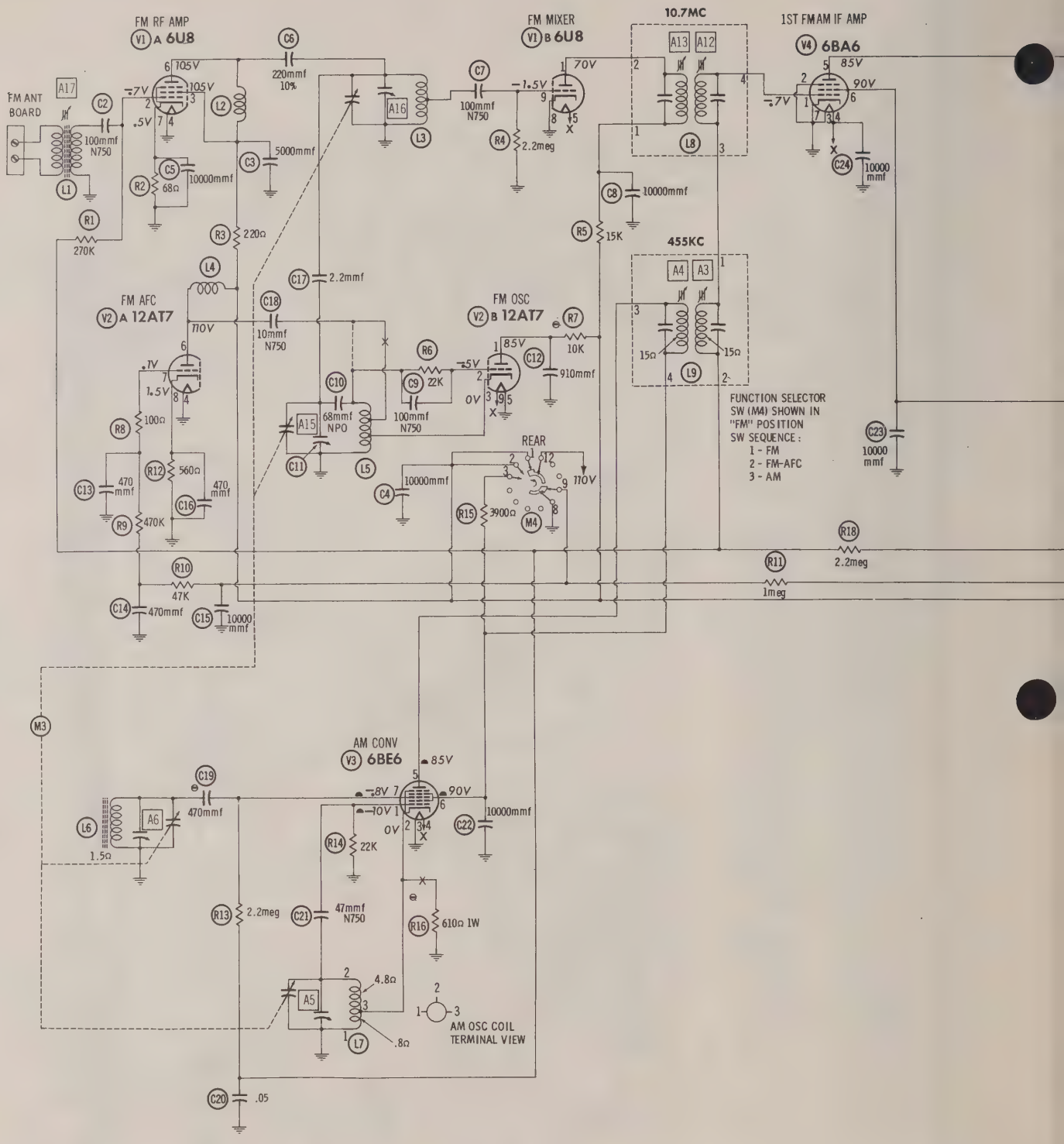
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



TUNER CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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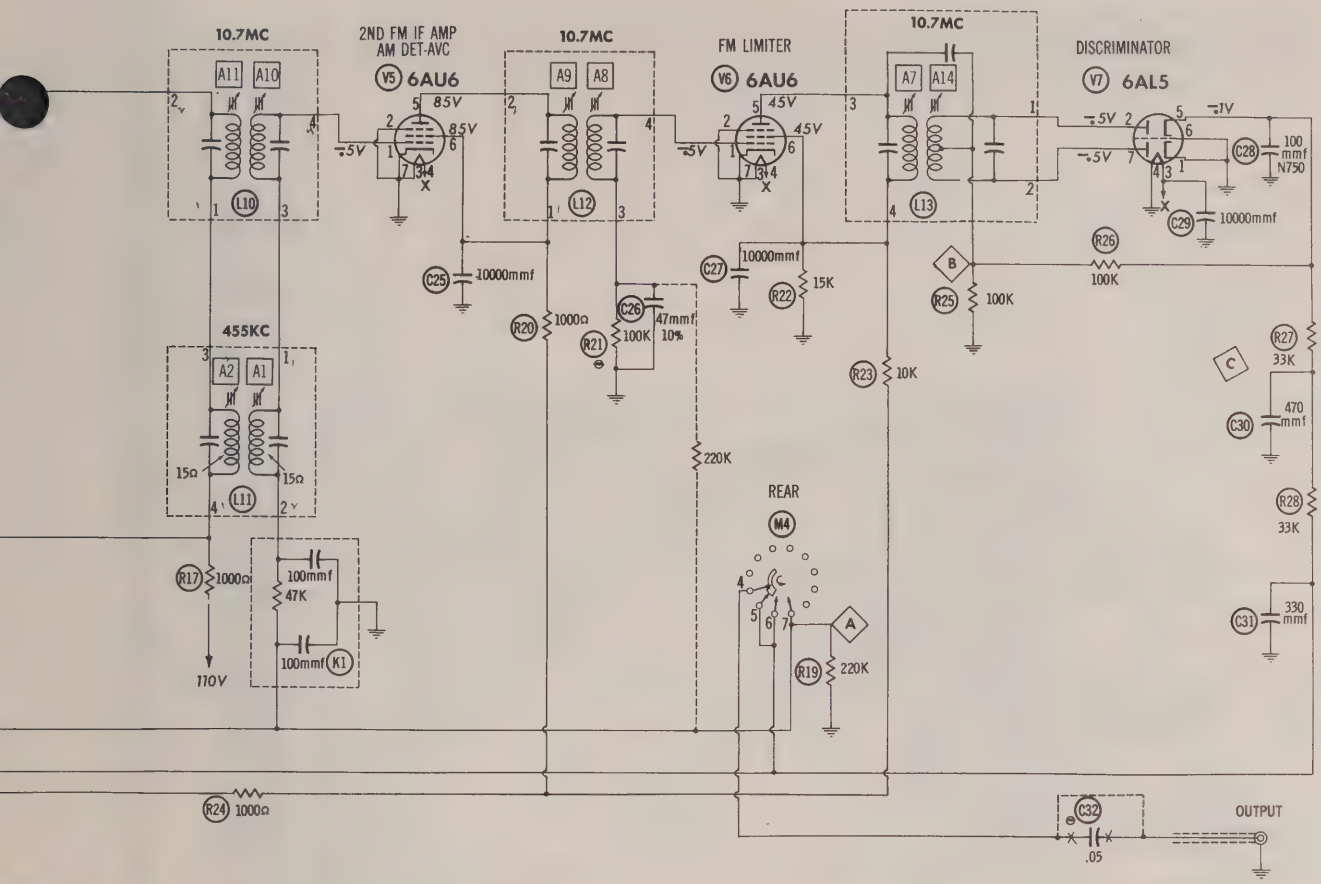
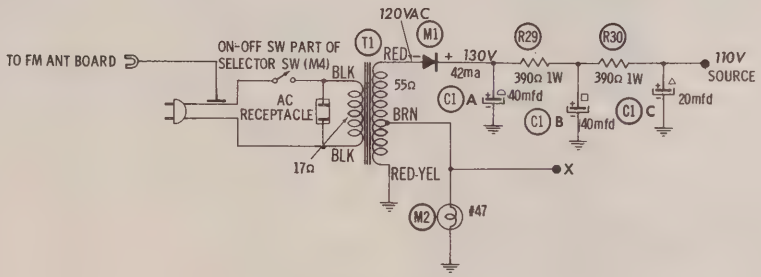
TUNER SCHEMATIC

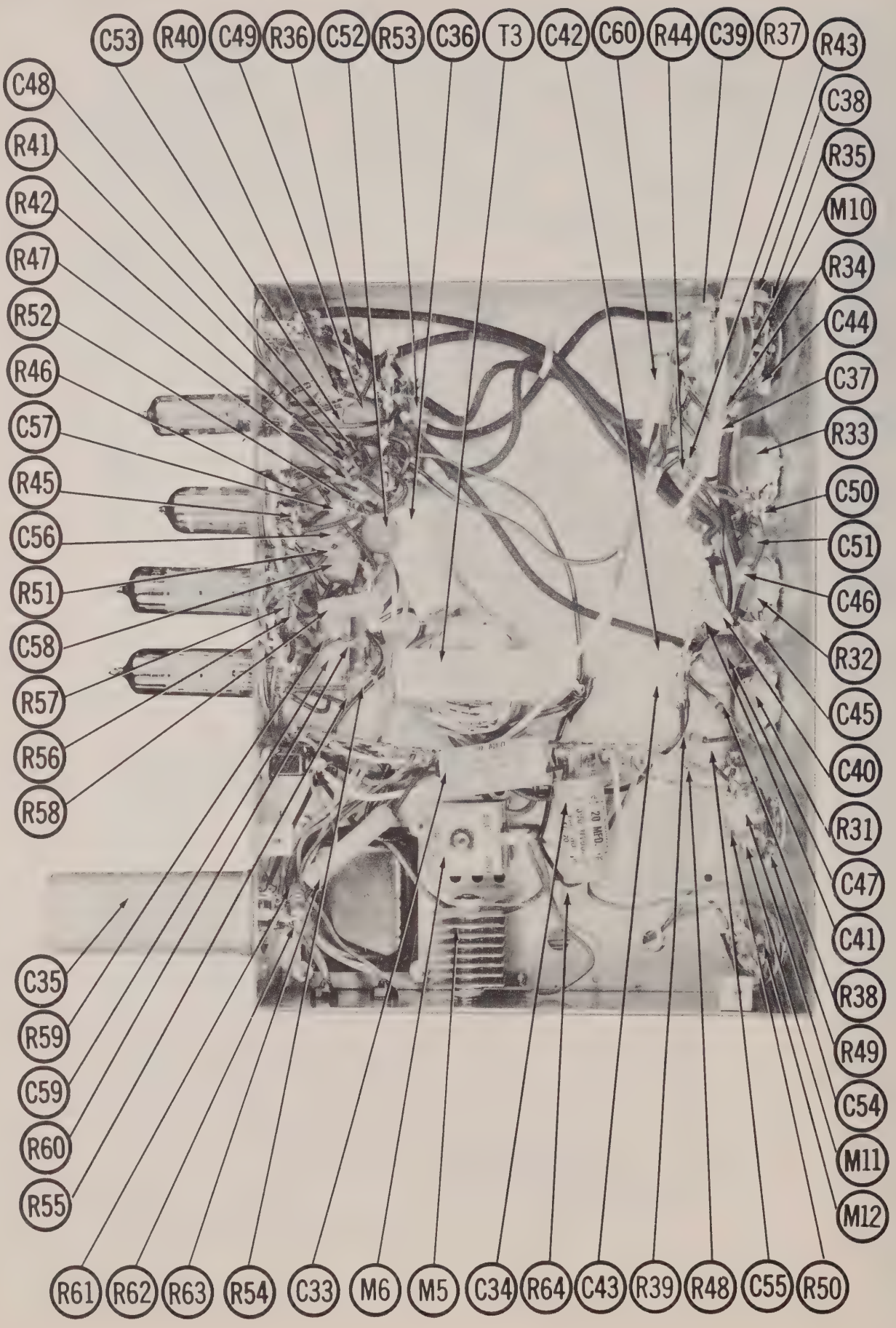




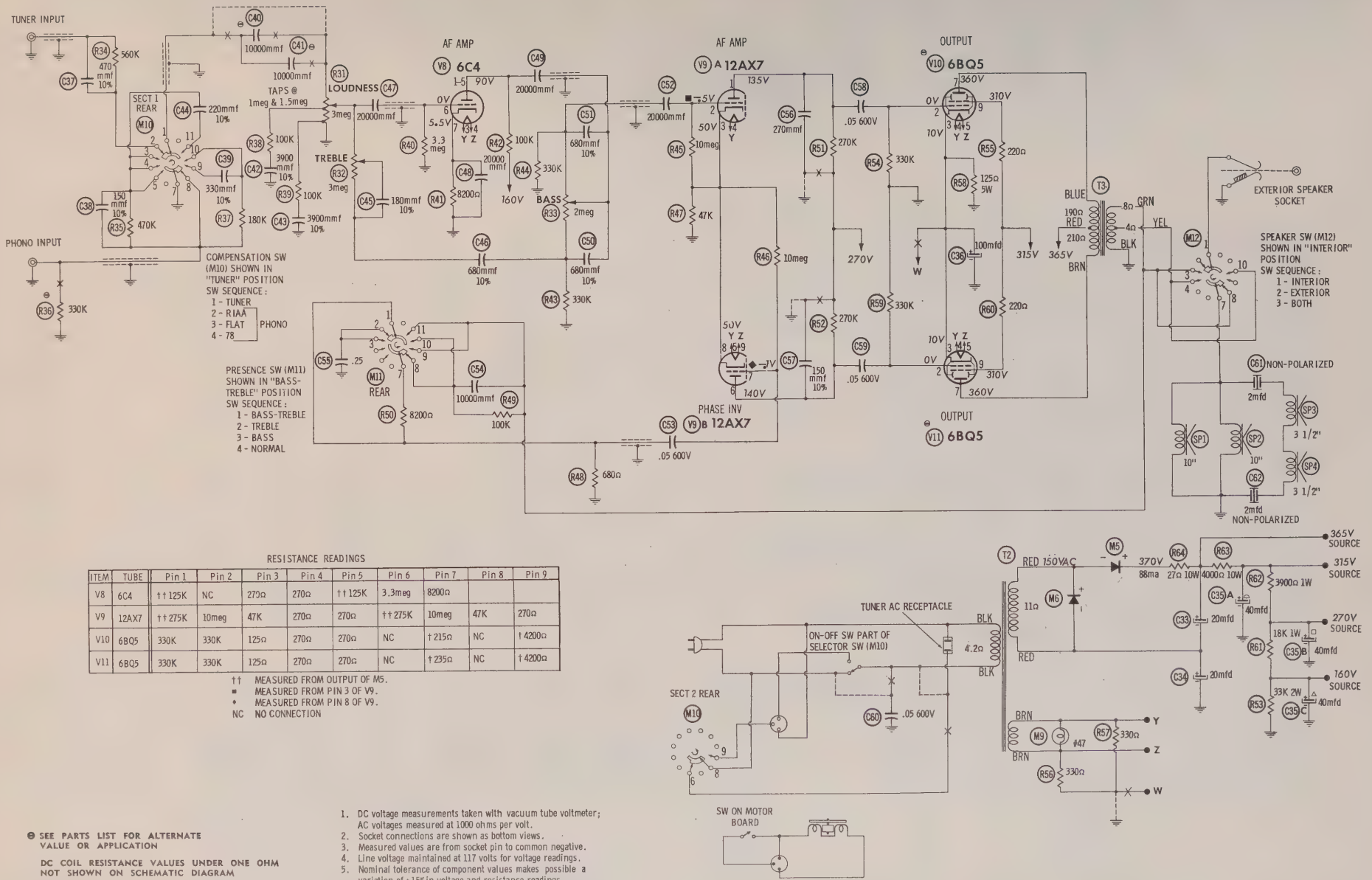
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8	†15K	2.6meg	†1000Ω	0Ω	.1Ω	†1000Ω	68Ω	0Ω	2.2meg
V2	12AT7	†10K	22K	.1Ω	0Ω	0Ω	†780Ω	1.8meg	560Ω	.1Ω
V3	6BE6	22K	.8Ω	0Ω	.1Ω	†▪4700Ω	†▪4700Ω	4.6meg		
V4	6BA6	2.4meg	0Ω	0Ω	.1Ω	†1800Ω	†1800Ω	0Ω		
V5	6AU6	265K	0Ω	0Ω	.1Ω	†2800Ω	†2800Ω	0Ω		
V6	6AU6	100K	0Ω	0Ω	.1Ω	†10K	†10K	0Ω		
V7	6AL5	0Ω	100K	.1Ω	0Ω	170K	0Ω	100K		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM OUTPUT OF M1.
▪ MEASURED IN "AM" POSITION.
▲ MEASURED IN FM-AFC POSITION.



AMP CHASSIS - BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V8	6C4	†† 125K	NC	270Ω	270Ω	†† 125K	3.3meg	8200Ω		
V9	12AX7	†† 275K	10meg	47K	270Ω	270Ω	†† 275K	10meg	47K	270Ω
V10	6BQ5	330K	330K	125Ω	270Ω	270Ω	NC	† 215Ω	NC	† 4200Ω
V11	6BQ5	330K	330K	125Ω	270Ω	270Ω	NC	† 235Ω	NC	† 4200Ω

†† MEASURED FROM OUTPUT OF M5.
■ MEASURED FROM PIN 3 OF V9.
♦ MEASURED FROM PIN 8 OF V9.
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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TRAV-LER MODELS 90-100, 90-105

AMP SCHEMATIC

TRAV-LER MODEL 90-100

AMP PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V8	AF Amplifier	6C4	
V9	AF Amp. - Phase Inv.	12AX7	
V10	Output	6BQ5/EL84	①
V11	Output	6BQ5/EL84	①

① Domestic type listed may not be directly interchangeable in some instances.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA TRAV-LER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C33	20	300	EC-70	PRS450V20	BR2035	TC65	TD-20-350	MT-4520	TVA-1608
C34	20	300	EC-70	PRS450V20	BR2035	TC65	TD-20-350	MT-4520	TVA-1608
C35A	▲40	450	EC-76	AFH3-44	C0350	FP377	TMT-40	T-170	TVL-3787
B	■40	450							
C	▲40	450							
C36	100	25	EC-27	PRS25V100	BBR100-25	TC2501	TD-100-25	MTH-2510	TVA-1207

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C37	470				D6-471	5R5T47		MS-347	10%
C38	150			NPO-DI 150	D6-151	22R5T15	ZT-5315	MS-315	10%
C39	330				D6-331	5R5T33		MS-333	10%
C40	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	①
C41	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	①
C42	3900					1R5D39		MS-239	10%
C43	3900					1R5D39		MS-239	10%
C44	220				D6-221	L10T22		MS-322	10%
C45	180				D6-181	L10T18		MS-318	10%
C46	680				D6-681	1R5T68		MS-368	10%
C47	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C48	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C49	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C50	680				D6-681	1R5T68		MS-368	10%
C51	680				D6-681	1R5T68		MS-368	10%
C52	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C53	.05	600		P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C54	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C55	.25	200		P288N-25		CUB2P25	GEM-2025	2TM-P25	
C56	270			SI 270	D6-271	LT6T27	UC-5327	5GA-T27	
C57	150			NPO-DI 150	D6-151	L10T15	ZT-5315	5TCC-T15	10%
C58	.05	600		P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C59	.05	600		P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C60	.05	600		P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C61	2	50							
C62	2	50							

① Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRAV-LER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R31A	3meg	½	VC-112					Loudness, Taps ② 1meg & 1.5meg
B	Shaft							
R32A	3meg	½	VC-123					Treble
B	Shaft							
R33A	2meg	½	VC-124					Bass
B	Shaft							

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	TRAV-LER PART No.	NOTES
R34	560K			
R35	470K			
R36	330K			①
R37	180K			
R38	100K			
R39	100K			
R40	3.3meg			
R41	8200Ω			
R42	100K			
R43	330K			
R44	330K			
R45	10meg			
R46	10meg			
R47	47K			
R48	680Ω			
R49	100K			

① Not used in some versions.

ITEM No.	RATING OHMS	RATING WATT	TRAV-LER PART No.	NOTES
R50	8200Ω			
R51	270K			
R52	270K			
R53	33K	2		
R54	330K			
R55	220Ω			
R56	330Ω			
R57	330Ω			
R58	125Ω	5(WW)		
R59	330K			
R60	220Ω			
R61	18K	1		
R62	3900Ω	1		
R63	4000Ω	10(WW)		
R64	27Ω	10(WW)		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	117V ② .62A	150V ② .090A	6.3V ② 1.8A	TR-32						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	5300Ω CT	6-8Ω Tap ② 3-4Ω	AT-31	Z1011	A-2901 ①	AU-609	A-3870	22S58	S-55X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA TRAV-LER PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	10"	PM	12-14Ω	SPK-70 ①	10A6AZ13	① Parallel and phase.
SP2	10"	PM	12-14Ω	SPK-70 ①	10A6AZ13	
SP3	3½"	PM	3-4Ω	SPK-28	3A15TZ4.7	
SP4	3½"	PM	3-4Ω	SPK-28	3A15TZ4.7	

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA TRAV-LER PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M5	.088A	SR-12		6RSI50	108D	① Silicon Type
				SD-93 ①	K200 ①	
M6	.088A	SR-12		6RSI50	108D	
				SD-93 ①	K200 ①	

AMP PARTS LIST AND DESCRIPTIONS (cont)

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	TRAV-LER PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M7		118-TS	N8-1 and N8-3	3	†CRA-55 or ♦CRA-55D and †CRA-55LP or ♦CRA-55LPD	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

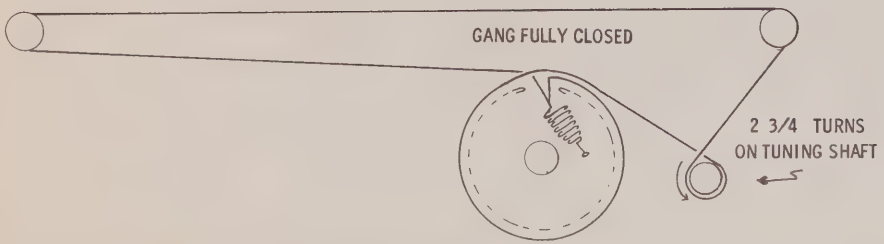
ITEM No.	REPLACEMENT DATA			REMARKS
	TRAV-LER PART No.	JENSEN PART No.	WALCO PART No.	
M8	(78RPM) (LP)	†CRA-55 or ♦CRA-55D †CRA-55LP or ♦CRA-55LPD	†W-64S or ♦W-64D †W-64MGS or ♦W-64MGD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M9	Lamp		#47
M10	Switch	SW-31	Compensation, Rotary, Wafer Type
M11	Switch	SW-29	Presence, Rotary, Wafer Type
M12	Switch	SW-30	Speaker Selector, Rotary, Wafer Type

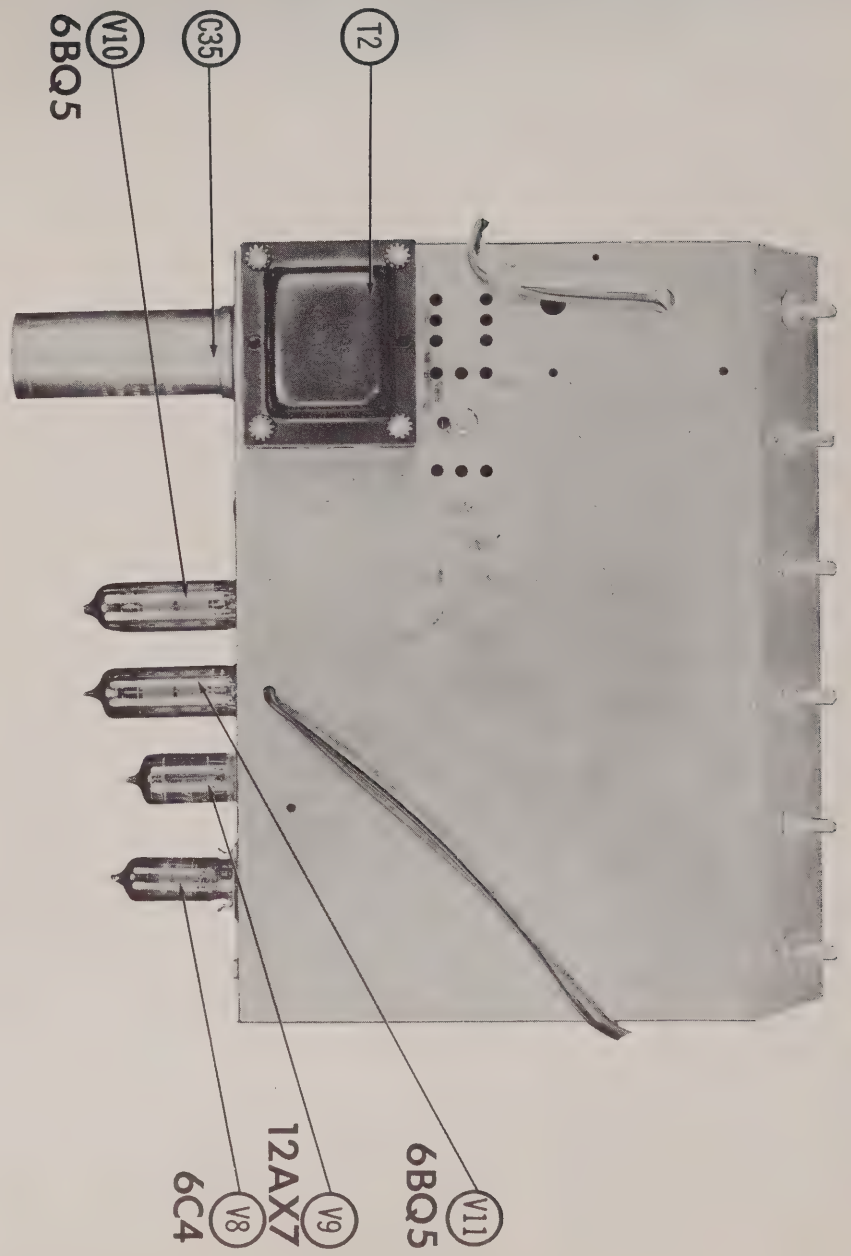
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



DIAL CORD STRINGING

AMP CHASSIS—TOP VIEW



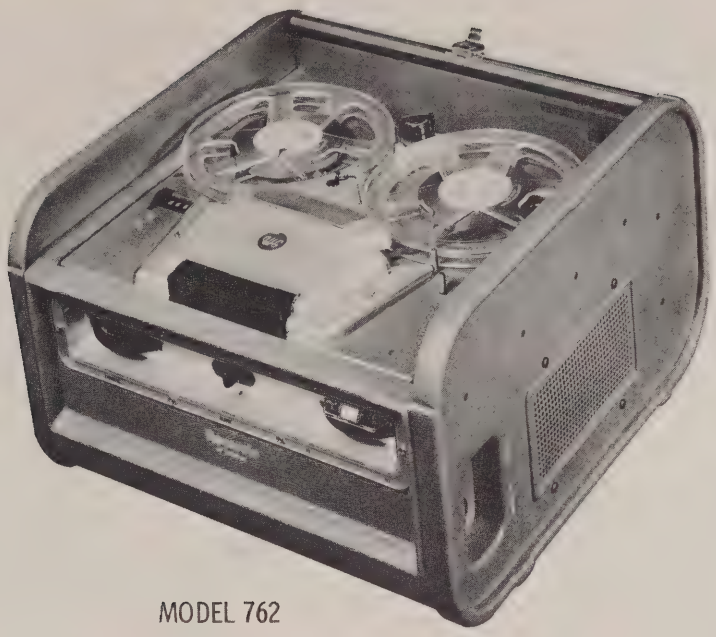
PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

**WILCOX-GAY
MODELS 762, 782**

WILCOX-GAY
MODELS 762, 782



MODEL 762

GENERAL INFORMATION

Wilcox-Gay Recordio Models 762 and 782 tape recorders feature push-button control for each tape transport mode of operation.

Dual-track recording gives two full-length recordings on a reel of tape. Any size reel up to 7" can be used. An automatic shutoff switch shuts off the unit when supply reel is empty. A tape timer lets the operator locate immediately any selection on a recorded tape. Two neon record level indicators simplify recording level setting.

New recordings can be made on previously recorded tape because the erase head is automatically positioned when Record button is depressed. Recordings can be made from a radio, television, or phonograph, in addition to those made directly from a microphone.

These recorders have two tape speeds, 3 3/4 and 7 1/2 ips. Using both tracks, recording time is as follows:

REEL SIZE	3 3/4" SPEED	7 1/2" SPEED
5"	1 hour	1/2 hour
7"	2 hours	1 hour

These recorders operate on 60 cycles, 117 volts AC only. Severe damage will result if connected to a direct current (DC) line.

MANUFACTURED BY:
WILCOX-GAY CORPORATION
CHARLOTTE, MICHIGAN

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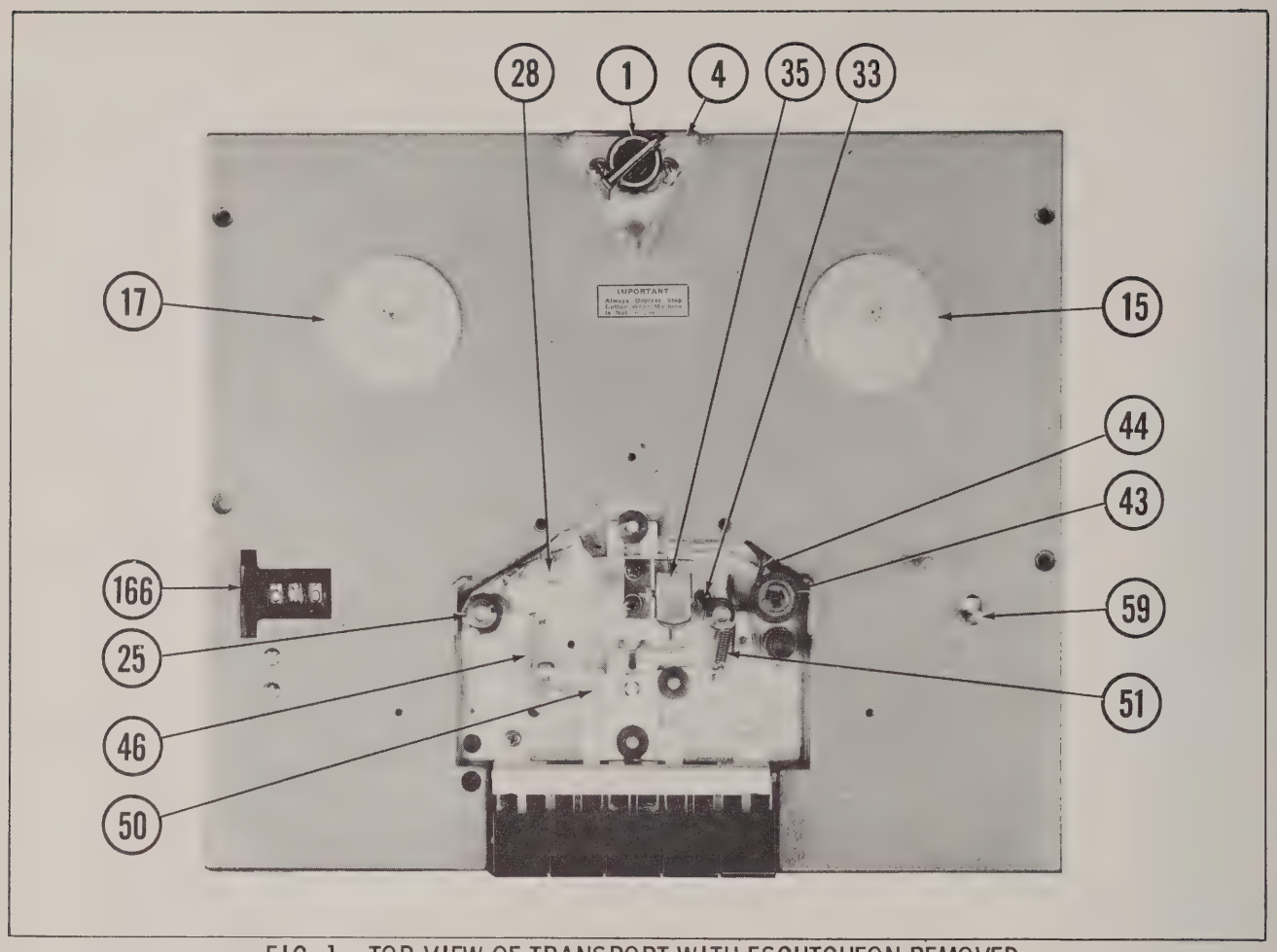


FIG. 1 TOP VIEW OF TRANSPORT WITH ESCUTCHEON REMOVED

SPECIFICATIONS

Size:

Model 762--16 1/2" x 15 7/8" x 10 1/8"
Model 782--18 1/2" x 18" x 12"

Weight (approximate):

Model 762--37 pounds
Model 782--47 pounds

Speeds:

3 3/4 and 7 1/2 ips

Reels:

3", 5", or 7"

Push-Pull:

Model 762--Recording and playback

Push-Pull Amplifier:

Model 782--Delivers 8 watts of undistorted output

Transistorized:

Uses transistor in preamplifier stage

Tube Complement:

Transistor 2N133 (PNP), 6AV6, 12AX7, 6AQ5 (2), 5Y3GT

Frequency Response:

Model 762--65 to 12,500 cps
Model 782--65 to 15,000 cps

Wow and Flutter:

.3% @ 7 1/2 ips — Model 762

.5% @ 3 3/4 ips — Model 762

.2% @ 7 1/2 ips — Model 782

.38% @ 3 3/4 ips — Model 782

Signal-to-Noise Ratio:

35 db minimum

Power Requirements:

117 volts, 60 cycles AC

Power Consumption:

110 watts

Preparing for Operation

1. Remove AC cord, reel of tape, empty reel, and microphone from case storage compartment.
2. Depress Stop button.
3. Insert AC cord into a convenient outlet of proper rating and into AC input on cabinet.
4. Set Speed Change knob to desired speed.

CAUTION: Do not turn Speed Change knob unless Stop button is depressed.

When Forward or Rewind button is depressed, Record and Play buttons are locked so they cannot be depressed, eliminating any possibility of tape spillage. Stop button must be depressed before changing functions or speeds.

IMPORTANT: Always depress Stop button when unit is not in use.

Threading the Tape

1. Place a reel of tape on nylon reel pan (17), making certain reel slots engage protrusion on pan. Place an empty reel on nylon reel pan (15), making certain reel slots engage protrusion on pan.
2. Unwind about 14" of tape from supply reel. Hold a section of tape taut and insert in tape slot, making sure dull-coated side of tape faces rear of unit.
2. To use automatic tape shutoff, thread tape as shown by dotted line in **Figure 2.** To thread tape in usual manner, see solid line in **Figure 2.**
4. Insert free end of tape into one of three slots in hub of take-up reel, and while holding tape in place, turn reel two or three revolutions until tape is secured to reel.

To Record from Microphone

1. Turn On-Off switch to left and allow sufficient time for unit to warm up. Left neon light will glow when unit is on.
2. Move Record Lock knob to left, releasing safety lock to prevent accidental erasure. Depress Record button while holding Record Lock knob to the left until Record button latches.

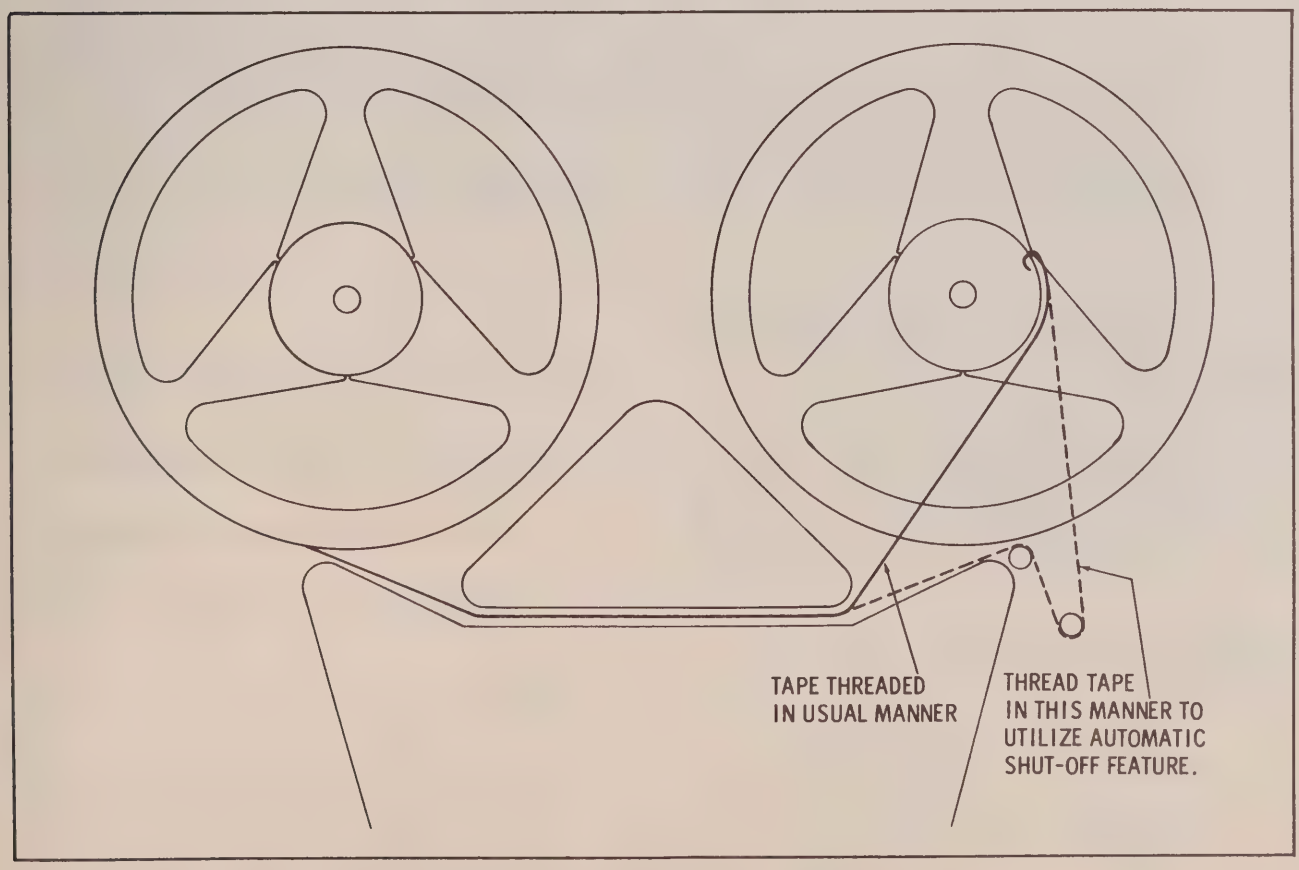


FIG. 2 TAPE THREADING DIAGRAM

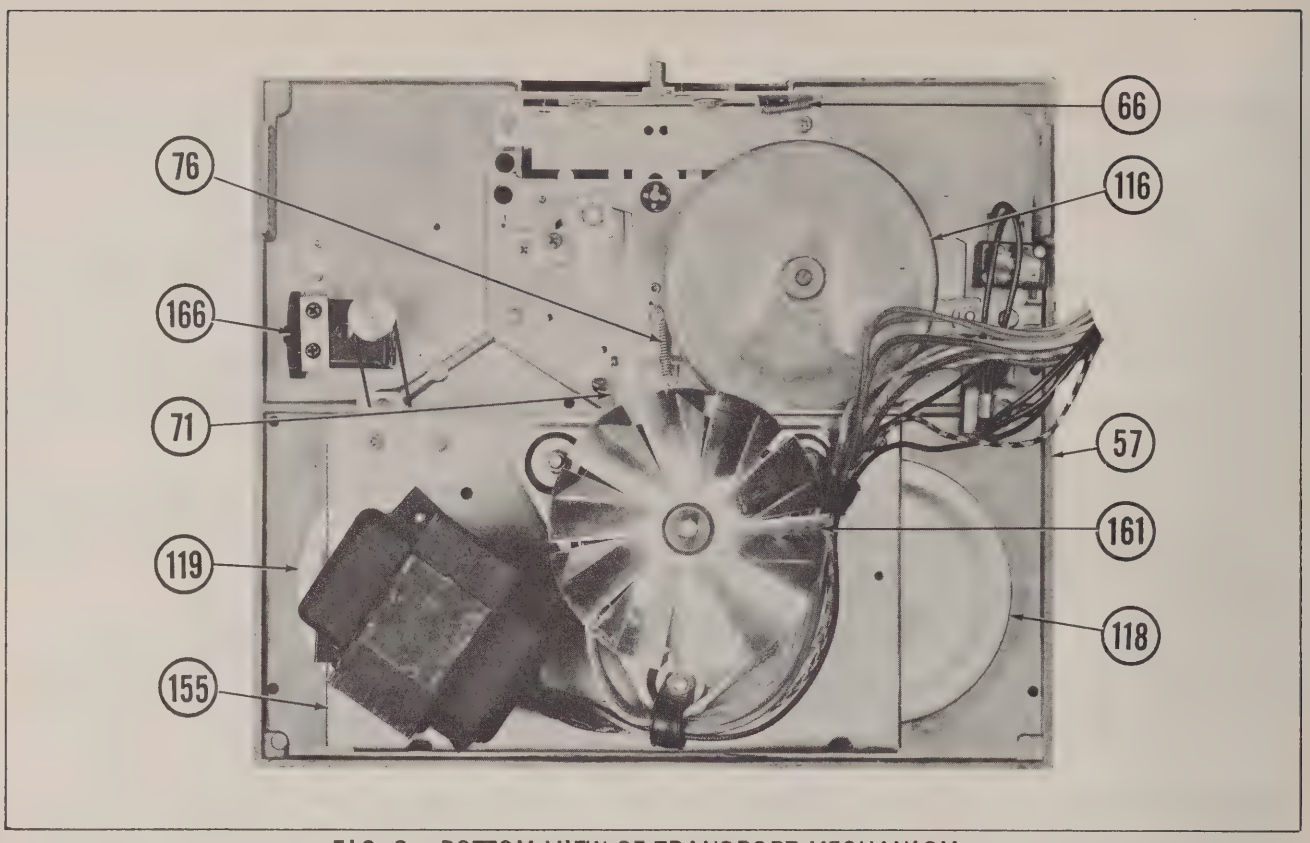


FIG. 3 BOTTOM VIEW OF TRANSPORT MECHANISM

3. Adjust Loudness control until right-hand neon indicator glows as brightly as left-hand indicator. If Loudness control is set too high, left-hand indicator will not light and will cause distortion. For proper recording level, both neon indicators should glow.

4. Tone control is automatically disconnected while recording. When recording from a radio, set radio tone control for maximum treble.

5. Any time during a recording, the auxiliary switch on Tone control may be operated to monitor the recording. This allows the speakers to operate while recording. Be careful to keep microphone far enough from recorder to prevent acoustic feedback squeal.

To Record from Radio, Television Receiver, or Phonograph

1. Insert phono plug into the Radio-Phono input.

2. For radio or TV recording, connect patch cord (Part No. C20.233) to voice-coil terminals of radio or TV receiver speaker with alligator clips. Plug into Radio-Phono jack.

3. Record as described under "To Record from Microphone."

NOTE: Remove patch cord from Radio-Phono jack after recording is completed.

To Use Second Track

1. Depress Stop button after all of the tape has been wound onto take-up reel.

2. Remove reel containing tape and place on left-hand (supply) pan.

3. Place empty reel on right-hand (take-up) pan.

4. Thread tape and record as described under "To Record from Microphone."

To Erase Tape

When Record button is depressed, erase head (28) is automatically positioned, erasing any previous recording while a new one is being made. **Recordings not wanted** may be erased, without recording, by depressing Record button and turning Loudness control to minimum volume.

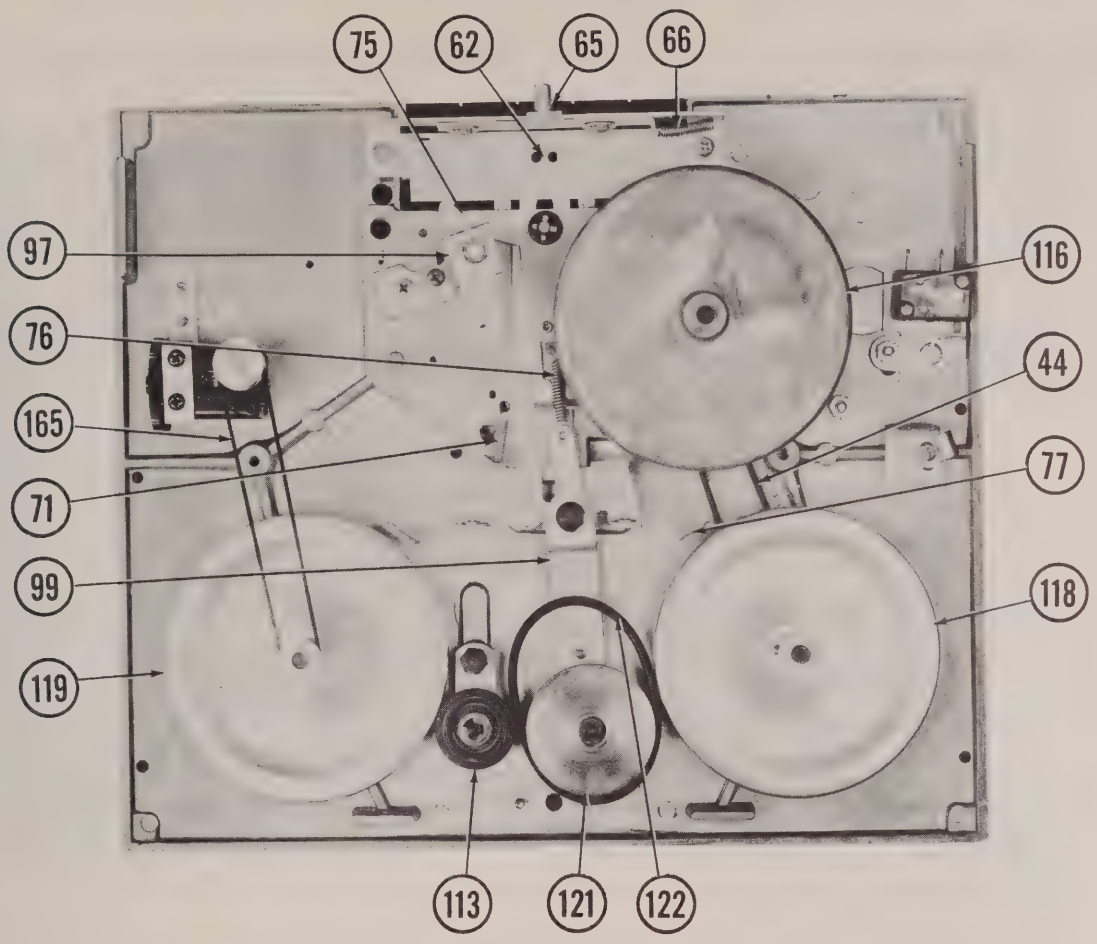


FIG. 4 BOTTOM VIEW OF TRANSPORT MECHANISM WITH MOTOR REMOVED

One track is erased at a time. To erase second track, reverse reels and repeat the foregoing operation.

To Play Recordings

1. Thread tape as described under "Threading Tape."
2. Set Speed Change knob to speed at which recording was made.
3. Depress Play button until it latches.
4. Adjust Loudness and Tone controls for desired listening level.

High-Speed Forward or Rewind

To play a certain portion of tape again, the entire reel need not be rewound. By depressing the Forward or Rewind button, tape will advance or reverse rapidly

Several minutes of normal recording can be skipped in a few seconds by using the Forward and Rewind buttons.

CLEANING

Most defects, other than wear or breakage, can be traced to dirty surfaces. Play-record head (35), capstan, and pinch roller (43) may accumulate tape coating oxide, worn off tape as it passes these parts. This accumulation should be removed periodically since it will cause faint recording and poor playback. Wipe above surfaces carefully with a clean cloth. If dirt is caked or hard and does not come off with a dry cloth, dampen cloth slightly with alcohol.

DISASSEMBLY

To Remove Unit from Cabinet

1. Remove Record Release Lock knob.
2. Remove six screws from escutcheon and remove escutcheon.
3. Remove four screws from top of tape transport.
4. Lift unit, unplug speaker, and remove unit from cabinet.

To Remove Amplifier from Tape Transport

1. Remove power plug.
2. Disconnect record-playback head.
3. Remove four screws (two on each side) from tape transport.
4. Remove switch linkage wire.
5. To reassemble, reverse the foregoing procedure.

MECHANICAL ADJUSTMENTS

Pressure Pad

1. Remove front escutcheon (14).
2. Depress Play button, but do not turn on unit.
3. With a pencil-type postal scale, check amount of pressure necessary to just pull right-hand pad away from play-record head. Test should be made at end of pressure pad mounting spring. If necessary, adjust locked adjustment screw (50) until a reading of 1 3/4 oz. $\pm$ 1/4 oz. is obtained.
4. Guide post pressure pad (left-hand pad) is adjusted by bending pressure pad spring (49) and must be adjusted for minimum pressure against tape.
5. After adjustments are made, depress Stop button and replace front escutcheon.

Erase Head (28)

1. With tape properly threaded, turn on recorder and depress Record button. Allow tape to run for a few seconds. Then turn off recorder, but leave Record button depressed.
2. With timer escutcheon (9) and front escutcheon (14) removed, check to see if erase head (28) is parallel with tape.
3. Check to see if top edge of tape coincides with top end of diagonal slot in erase head (28) (junction of long diagonal and short vertical slot). To adjust tape level, loosen set screw (24) and rotate tape guide post (25) to move tape up or down.

Brake Shoes

1. With all push buttons in up position, brake pads (78) should clear brake drums (118) and (119) by approximately 1/8".
2. Depress Stop button while observing brake pads (78). Both brake pads (78) must contact brake drums (118) and (119) at same time and with equal pressure.
3. If necessary, adjust by bending brake spring (77).

LUBRICATION

All rotating parts have generous sized, factory-lubricated oilite bearings. Under normal use, no further lubrication is necessary. In heavy-duty service, the following parts should be lubricated once a year with a drop of #10 motor oil:

1. Top and bottom motor bearings.
2. Capstan bearing.
3. Pinch roller (43) bearings.
4. All idler and drive wheel bearings.
5. Reel spindle bearings.

The basic rule is--do not overlubricate. Oil must be kept off all rubber idlers, belts, periphery of flywheel, and any parts that might transfer oil to them. Always wipe excess lubricant from lubricated parts.

Occasionally remove foreign matter from under plastic button cover and place a drop of oil on sliding lever members.

Record Hum

Place unit in Record position, with volume at maximum and tone at full bass. Short out bias at L1. Connect a VTVM to External Speaker jack. Set VTVM to AC volts, 3-volt scale, with a 3.3-ohm load resistor across meter. Adjust record hum control R2A for minimum deflection on meter.

Head Alignment

Remove front and rear escutcheons. Clean pole pieces of play-record head, using a good commercial head cleaning agent, such as naptha or lighter fluid. Then proceed as follows:

1. Thread alignment tape on recorder. Turn volume to maximum and tone to full treble. Connect VTVM to External Speaker jack. Set meter for AC volts, 3-volt range.
2. Place unit in Play position, at 7 1/2" speed. Decrease volume until output is 1 volt on meter. Rotate play-record head adjustment screw (33) until maximum point of deflection is found.
3. Gently press pressure pad at extreme right of play-record head. Output should not increase. If a gain is noted, readjust pressure pad slightly. (See "Pressure Pad Adjustment" under "Mechanical Adjustments.")

Indicator Lights (Normal and Overload)

Normal and Overload indicator lights are preset, and there are no firing adjustments. If either light must be changed, both should be replaced with a matched set of neon indicators to insure proper recording level indication.

Bias

1. Set line voltage at 117 volts.
2. Place unit in Record position and turn Loudness control to maximum.
3. Connect VTVM between ground and pin #7 of V4. Place meter selector on AC volts, 10-volt range.
4. Adjust trimmer C20 for 2 volts on meter.

TROUBLE CHART

Symptom	Cause	Remedy
Push buttons fail to latch into position.	1. Lock plate spring (62) disconnected or broken.	1. Connect or replace lock plate spring (62).
No drive in Play or Record.	1. Idler tension spring (146) or (153) disconnected or broken. 2. Idler slide plate (135) binding on idler slide bushing (136), preventing idler wheel (133) from moving forward.	1. Connect or replace idler tension spring (146) or (153). 2. Check idler slide plate (135) and idler slide bushing (136) for burrs. Clean with alcohol.
Tape fails to wind on take-up reel during Play or Record.	1. Reel drive spring (44) loose, disconnected, or broken. 2. Reel pan shaft (15) binding.	1. Tighten, connect, or replace reel drive spring (44). 2. Wipe foreign matter from bearing surface and shaft with a clean cloth. Lubricate with one drop of #10 motor oil.
No fast forward or rewind.	1. Idler lever tension spring (76) disconnected or broken, thereby not actuating idler lever (99). 2. Idler drive belt (122) broken or not properly connected.	1. Connect or replace idler lever tension spring (76). 2. Replace or connect idler drive belt (122)
Tape spills when Stop button is depressed during fast forward or rewind	1. Brake shoes out of adjustment. 2. Brake pads (78) worn out or missing.	1. See "Brake Shoe Adjustment" under "Mechanical Adjustment." 2. Replace brake pads (78).

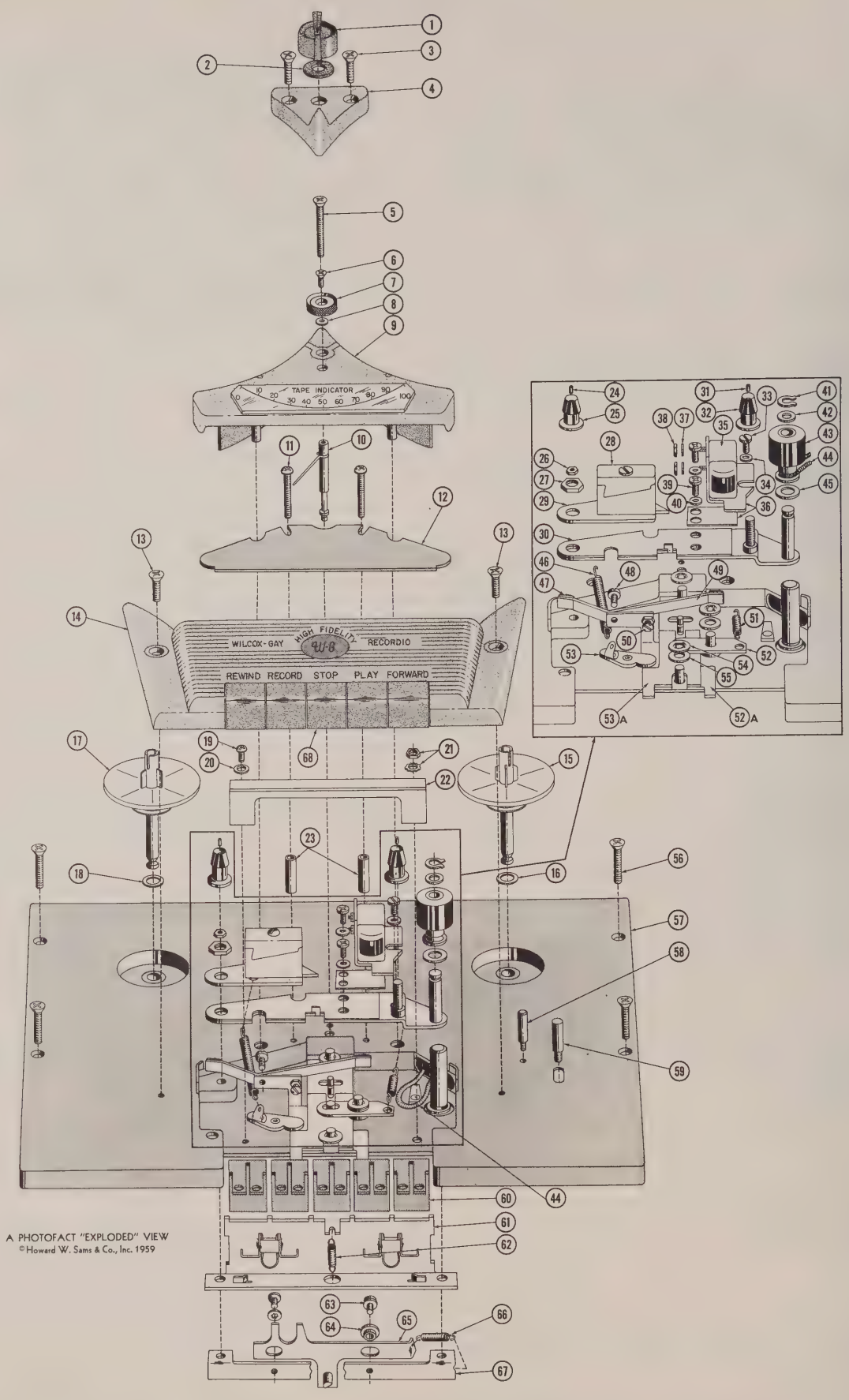


FIG. 5A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE

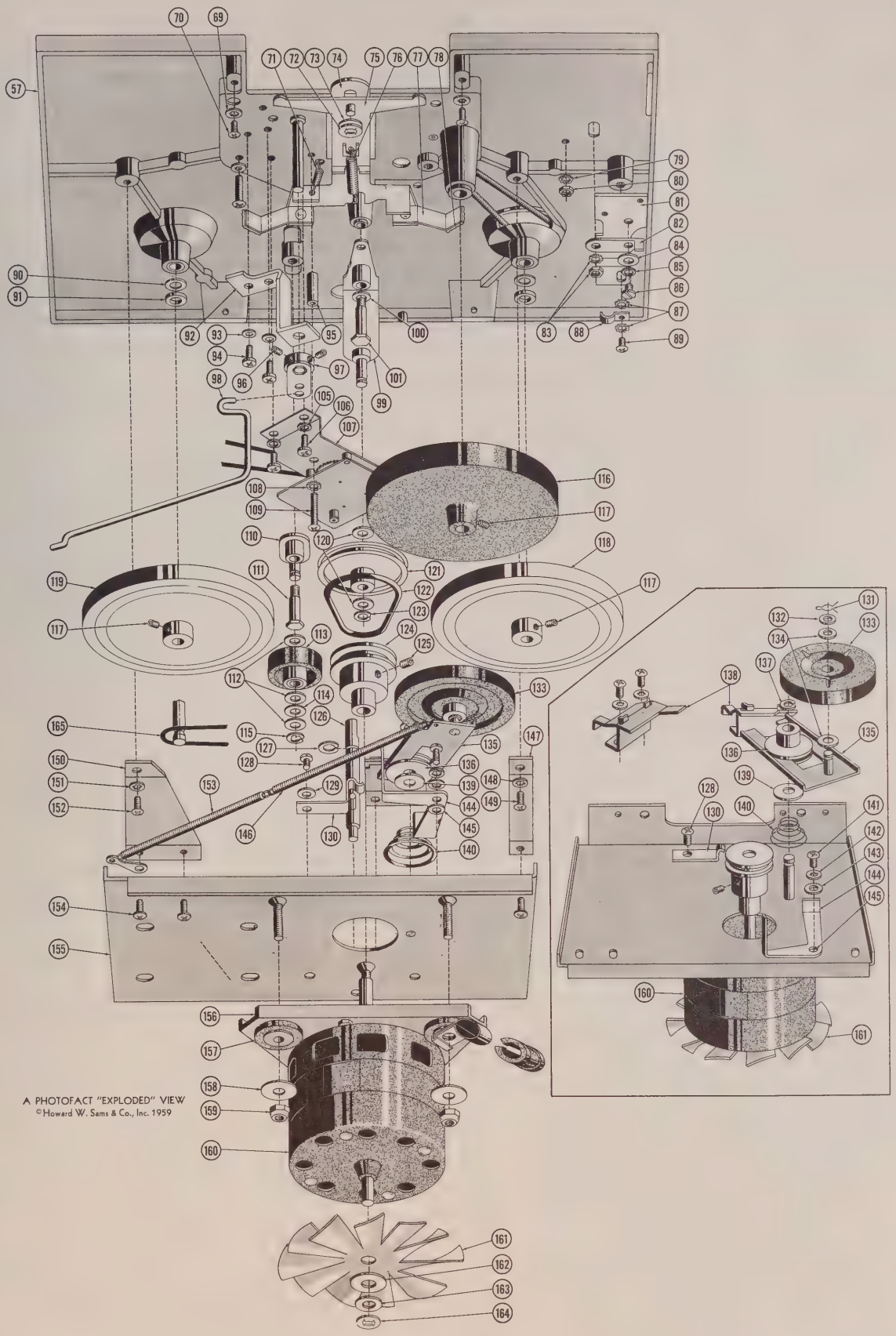


FIG. 5B. EXPLODED VIEW OF PARTS BELOW BASEPLATE

TROUBLE CHART-CONIT.

Symptom	Cause	Remedy
Wow.	1. Brake return spring (71) disconnected or broken. 2. Oil or foreign matter on driving surfaces.	1. Connect or replace brake return spring (71). 2. Clean with a cloth and alcohol.
Flutter.	1. Dirty play-record head (35), pressure pads, capstan shaft, or pinch roller (43).	1. Clean as described under "Cleaning."
No erase, or incomplete erase.	1. Erase head tension spring (46) disconnected or broken. 2. Erase head (28) not properly adjusted.	1. Connect or replace erase head tension spring (46). 2. See "Erase Head Adjustment" under "Mechanical Adjustments."
Does not record.	1. Faulty microphone or cord. 2. Faulty input jack. 3. Faulty tube. 4. Low bias voltage 5. Open play-record head (35).	1. Replace if necessary, after checking recorder with another input. 2. Replace input jack. 3. Replace any faulty tubes. 4. See "Bias Adjustment" under "Electrical Adjustment." 5. Check continuity. If open, replace play-record head (35). If not open, demagnetize head.
Motor and amplifier inoperative.	1. Defective power supply. 2. Damaged power cord. 3. Defective On-Off switch.	1. Check voltages with schematic. 2. Repair or replace power cord. 3. Replace On-Off switch.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	C-13.253-9	Speed Shift Knob (Brown)
2	73-2254-3	Felt Washer, 3/4" O.D. x 1/4" I.D. x 1/16
3	57-4C-610-5	#6-32 x 5/8 Phillips O.H.M.S.
4	C-13.360	Speed Shift Escutcheon (Model 762 only)
5	57-4C-624-5	#6-32 x 1 1/2 Phillips O.H.M.S
6	57-4C-405-7	#4-40 x 5/16 O.H.M.S. Phillips
7	B-32.302	Timer Knob
8	73-2334-1	#6 Cantlink Washer
9	D-13.363	Timer Escutcheon
10	B-35.1036	Timer Shaft & Pointer Ass'y. (Model 782)
11	57-1C-618-1	#6-32 x 1 1/8 Phillips B.H.M.S.
12	C-19.975-6	Rear Escutcheon Plate
13	57-4C-610-5	#6-32 x 5/8 Phillips O.H.M.S.
14	E-13.364	Front Escutcheon (Model 762)
	E-13.293-6	Front Escutcheon (Model 782)

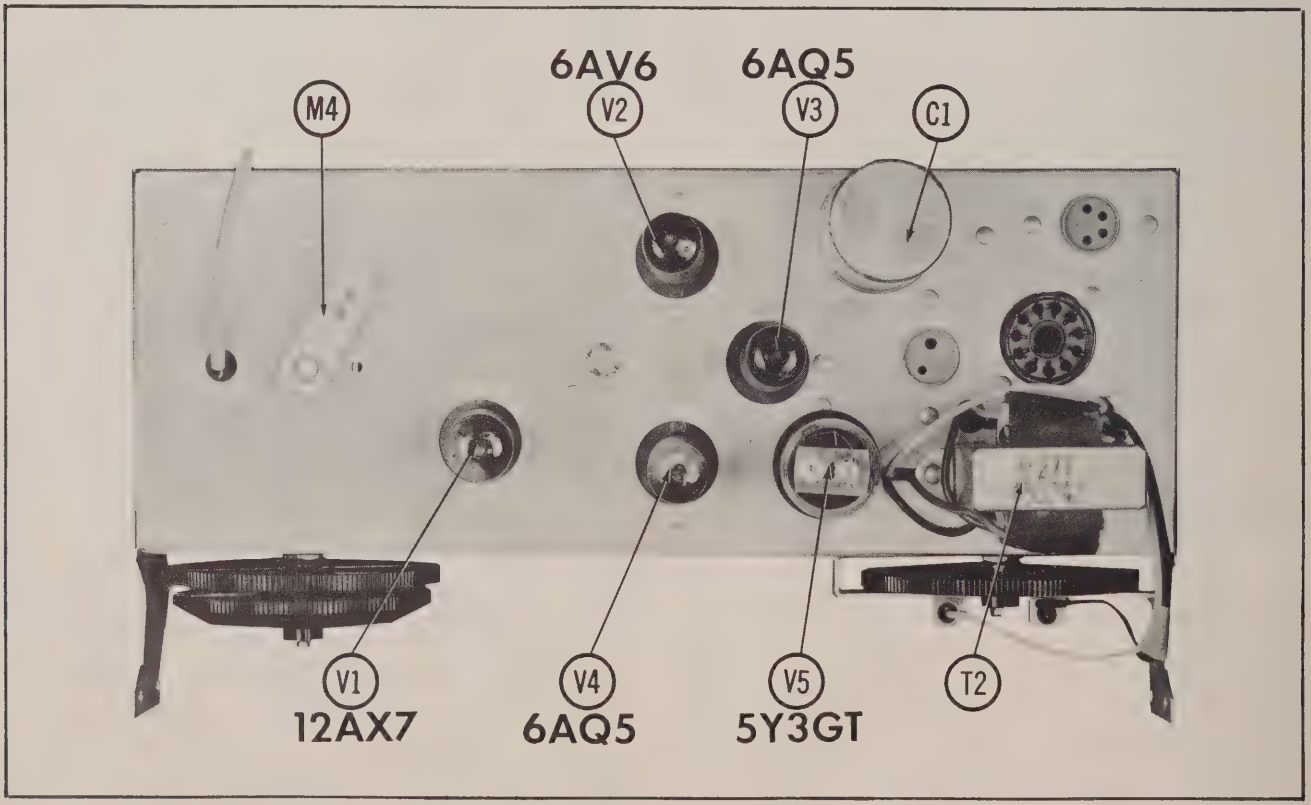
Ref. No.	Part No.	Description
15	C-13.318-0	Nylon Reel Pan & Shaft Ass'y.
16	B-28.163	Linen Washer
17	C-13.318-0	Nylon Reel Pan & Shaft Ass'y.
18	B-28.163	Linen Washer
19	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
20	73-2231-4	#6 Int. Lockwasher
21	48-2219-1	#6-32 x 5/16 Keps Hex. Nut
22	B-19.858	Push Button Retaining Bracket
23	B-33.446	Spacer 7/8" long
24	57-3439	#6-32 x 3/16 Bristol Hd. Set Screw
25	B-32.300	Tape Guide Post
26	48-410-1	#6-32 Hex. Nut
27	B-32.260	Tape Guide Post Spacer
28	C-35.756-1	Erase Head Ass'y.
29	B-19.872-1	Erase Head Mtg. Plate
30	C-35.1067	Pinch Roller & Record Head Ass'y.
31	57-3439	#6-32 x 3/16 Bristol Hd. Set Screw

Ref. No.	Part No.	Description
32	B-32.282	Tape Guide Post
33	57-3102-1	#4-36 x 1/4 R.H.M.S. (Azimuth Adj.)
34	73-2231-3	#4 Int. Lockwasher
35	B-36.212	Play-Record Head
36		Play-Record Head Bracket Ass'y.
37		Int. Tooth Lockwasher
38		#2-56 x 3/16 Hex Nut
39	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
40	73-2231-4	#6 Int. Lockwasher
41		"E" Ring, 3/16" Shaft
42	B-28.163	Linen Washer
43		Pinch Roller
44	B-31.351	Reel Drive Spring (Belt)
45	B-28.163	Linen Washer
46	B-31.361	Erase Head Tension Spring
47	B-31.334	Felt Pad (2 used)
48	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
49	B-35.1047	Pressure Pad Spring Ass'y.
50	57-16C-606-1	#6-32 x 3/8 R.H.M.S.
51		Pinch Roller Tension Spring
52		Playback Actuating Lever
52A	B-35.1045	Playback Slide Plate Ass'y.
53	B-35.1025	Record Actuating Lever Ass'y.
53A	B-19.868	Record Slide Plate
54	B-33.412	Push-On Stud Nut, 3/16" Stud
55	73-2241-148F	Flat Washer, 1/2 O.D. x .205 I.D. x 1/32
56	57-4C-816-5	#8-32 x 1 Phillips O.H. M.S. (Model 762)
	57-3C-816-1	#8-32 x 1 Phillips F.H. M.S. (Model 782)
57	B-35.1068-1	Base Plate Ass'y. (Model 762)
	B-35.1068-3	Baseplate Ass'y. (Model 782)
58	B-32.373-1	Tape Guide Post
59	B-32.373-2	Post, Automatic Shutoff
60	B-19.876-1	Push Button Lever
61	B-19.859	Hinge Bracket for Push Buttons
62	B-31.343	Lock Plate Spring
63	57-3576-1	#8-32 x 1/4 Sems. P.H. M.S.
64	B-32.291	Shouldered Washer
65	B-35.1023	Record Lock Ass'y.
66	B-31.427	Record Lock Return Spring
67	B-19.1364-1	Record Lock Mtg. Plate
68	B-35.1043-1	Push Button Ass'y. (Model 762)
	B-35.1043-3	Push Button Ass'y. (Model 782)
69	73-2231-5	#8 Int. Lockwasher
70	57-6C-805-1	#8-32 x 5/16 Phillips R.H. M.S.
71	B-31.338	Brake Return Spring

Ref. No.	Part No.	Description
72	B-33.412	Push-On Stud Nut, 3/16 Stud
73	73-2241-148F	Flat Washer, 1/2 O.D. x .205 I.D. x 1/32
74	C-35.835	Brake Slide Plate Ass'y.
75	B-35.1046-1	Shift Plate Ass'y.
76	B-31.339	Idler Lever Tension Spring
77	B-35.1070	Brake Spring Ass'y.
78	B-31.335	Brake Pad, Felt
79	73-2231-4	#6 Int. Lockwasher
80		#6-32 x 1/4 Hex. Nut
81	B-19.1374	Stop Switch Mtg. Bracket
82	B-19.1367	Actuating Lever
83	48-2219-1	#6-32 x 5/16 Keps. Hex. Nut
84	B-32.291-1	Shouldered Washer
85	73-2231-5	#8 Int. Lockwasher
86	57-11C-804-1	#8-32 x 1/4 B.H.M.S.
87	73-2231-5	#8 Int. Lockwasher
88		Wire Clamp
89	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
90	B-28.163	Linen Washer
91	73-2248-39	Flat Washer, .425 O.D. x .255 I.D. x .070 Phenol
92		Switch Lever Bracket
93	73-2231-4	#6 Int. Lockwasher
94		#6-32 x 1/4 Phillips B.H. M.S., Brz.
95	B-33.118	Spacer
96	57-3439	#6-32 x 3/16 Bristol Hd. Set Screw
97	B-35.1033	Switch Lever Ass'y.
98	B-19.1379-1	Switch Arm Link
99	B-35.1051-1	Idler Lever Ass'y.
100	B-31.382	Spring Washer
101	B-32.275-1	#8-32 Hex. Hd. Shouldered Screw
102		
103		
105	73-2231-4	#6 Int. Lockwasher
106	57-1C-603-2	#6-32 x 3/16 Phillips B.H. M.S.
107	D-33.445	Gear Train for Tape Index
108	73-2231-4	#6 Int. Lockwasher
109	57-1C-614-1	#6-32 x 7/8 Phillips B.H. M.S.
110	B-35.1044	Sub-Idler Plate Ass'y.
111	B-32.275-1	#8-32 Hex. Hd. Shouldered Screw
112	B-28.163	Linen Washer
113	B-33.405	Sub Idler Wheel
114	73-2254-6	Felt Washer
115		"E" Ring, 3/16" Shaft
116	C-13.257-1	Flywheel
117	57-3589-1	#8-32 x 1/4 Bristol Hd. Set Screw
118	B-35.1050-1	Brake Drum & Bushing Ass'y.
119	B-35.1050-1	Brake Drum & Bushing Ass'y.
120	B-28.163	Linen Washer
121	B-35.1066	Sheave Pulley Ass'y.

Ref. No	Part No.	Description
122	B-28.181	Idler Drive Belt
123		"E" Ring, 3/16" Shaft
124	B-32.288	Motor Pulley
125	57-3589-1	#8-32 x 1/4 Bristol Hd. Set Screw
126	B-35.1021-1	Speed Control Shaft Ass'y.
127	B-33.407-1	"C" Washer
128	57-1C-603-2	#6-32 x 3/16 Phillips B.H.M.S.
129	73-2231-4	#6 Int. Lockwasher
130	B-19.961	Detent Spring
131	B-33.409	Hair Pin Clip
132	73-2241-150	Flat Washer, Blued Steel
133	B-33.408	Idler Wheel, 2 1/2" Dia.
134	B-28.163	Linen Washer
135	B-35.1064	Idler Slide Plate Ass'y.
136	B-32.264	Idler Slide Bushing
137	B-33.407-1	"C" Washer
138	B-19.878	Speed Shift Lever
139		Flat Washer, Steel
140	B-31.327	Idler Lift Compression Spring
141	57-6C-806-1	#8-32 x 3/8 Phillips R.H.M.S.
142	73-2231-5	#8 Int. Lockwasher
143	73-2241-143	Flat Washer, Steel
144	110-47	Idler Throw-Out Lever
145	B-32.291-1	Shouldered Washer
146	B-31.324	Idler Tension Spring
147	B-19.862	Angle Brkt. for Mtg. Drive Ass'y.

Ref. No.	Part No.	Description
148	73-2231-5	#8 Int. Lockwasher
149	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
150	B-19.863	Drive Mtg. Plate Bracket
151	73-2231-5	#8 Int. Lockwasher
152	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
153	B-31.324	Idler Tension Spring
154	57-6C-805-1	#8-32 x 5/16 Phillips R.H.M.S.
155	B-35.1054-2	Drive Mtg. Plate Ass'y.
156	C-19.837-1	Motor Adaptor Plate
157	B-28.159	Shock Mount
158	B-33.411	Flat Washer, 3/4 O.D. x 3/16 I.D. x .050
159	48-2221	#10-32 Hex. Nut (Elastic Stop Nut)
160	C-36.154	Motor, Square Type (G.I. or Alliance)
	C-36.153	Motor, Round Type (Fasco)
161	C-19.887-1	Motor Fan
162	73-2254-3	Felt Washer, 3/4 O.D. x 1/4 I.D. x 1/16
163	73-2241-143	Flat Washer, 5/8 O.D. x .260 I.D. x 1/32
164	33.415	Speed Nut
165	B-28.181	Idler Drive Belt
	B-33.536	Digital Counter (Model 762)



AMP CHASSIS - TOP VIEW

ELECT. PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Preamp. -AF Amp.	12AX7/ ECC83
V2	AF Amp	6AV6
V3	Output	6AQ5

ITEM No.	USE	TYPE
V4	Output	6AQ5
V5	Rectifier	5Y3GT

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N191 *	Playback Pre Amp-Bias Osc.				2N270	PNP

* Some versions may use 2N147A, 2N133, or GT20 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Wilcox-Gay PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲ 20	450	C-5.421-7 ①	AFH4-67	D0520	FP376.5 TT25X20		Q-340	TVL-4724.2
B	▲ 20	450							
C	■ 20	450							
D	20	25							
C2	50	6	B-5.448 ②	SRE6V50	BBR50-6	TT6X50	TD-50-6	MMT-650	TVA-1100
C3	50	6	B-5.448 ②	SRE6V50	BBR50-6	TT6X50	TD-50-6	MMT-650	TVA-1100
C4	50	6	B-5.448	SRE6V50	BBR50-6	TT6X50	TD-50-6	MMT-650	TVA-1100

① Alternate Part #B-5.421-7.
② Some versions may use 50mfd@15V in this application (Part #B-5.457).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	Wilcox-Gay PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	470		C-4.109-41	SI470	D6-471	LT6T47	UC-5347	5GA-T47	
C6	470		C-4.109-41	SI470	D6-471	LT6T47	UC-5347	5GA-T47	
C7	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C8	.047	400	D-4.148-58	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C9	.033	400	D-4.148-56	P488N-033	DF-303	CUB4S33	GEM-4133	4TM-S33	
C10	100		C-4.109-40	SI100	D6-101	LT6T1	UC-531	5GA-T1	
C11	50		C-4.151-1	1469-00005	D6-500	22R5Q5	MCB225	MS-45	10%
C12	1500		C-4.109-13	SI1500	D6-152	LT6D15	UC-5215	5GA-D15	
C13	20000		C-4.115-23	BPD-02	DD-203	BYB6S2		5HK-S2	
C14	100		C-4.109-40	SI100	D6-101	LT6T1	UC-531	5GA-T1	
C15	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C16	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C17	1500		C-4.109-13	SI1500	D6-152	LT6D15	UC-5215	5GA-D15	
C18	100		C-4.109-40	SI100	D6-101	LT6T1	UC-531	5GA-T1	
C19	.047	400	D-4.148-58	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C20	10-160		B-4.152						
C21	330		C-4.109-39		D6-331	L10T33		MS-333	10%
C22	.047	400	D-4.148-58	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C23	.47	15	D-3.100-63	P288N-47		CUB2P47	GEM-2047	2TM-P47	
C24	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C25	2000		C-4.109-42				DC522		10%
C26	470		C-4.151-2	1464-00047	D6-471	5R5T47		MS-347	10%
C27	470		C-4.151-2	1464-00047	D6-471	5R5T47		MS-347	10%
C28	330		C-4.104-59	1464-00033	D6-331	5R5T33		MS-333	10% Note 1
C29	1500		C-4.109-13	SI1500	D6-152	LT6D15	UC-5215	5GA-D15	
C30	100		C-4.109-40	SI100	D6-101	LT6T1	UC-531	5GA-T1	
C31	10000		C-4.115-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C32A	4000		C-4.131-2	BPD-2X004	DD-402	BYC6DD4	DCD524	5HK-2D4	
B	4000				DD-402				

Note 1. Not used in some versions

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Wilcox-Gay PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	B-11.252	F1-52			■ UE3835S	Loudness Note 1
B	250K			R2-35				Tone
C	Switch			KB-1 or KR-1*				Monitor
R2A	500Ω	½	B-8.240	AB-4	B47-500-S	B11-103	PTA52L	Hum Balance
B	Shaft			AK-1	Not Req.	SK2	Not Req.	

* Use KB-1 with CRL "Blue Label" controls and KR-1 with "Red Label" controls.
■ "STA-LOC" Equivalent: FB16A, OF812, RU254A, IS1250, US41.
Note 1. Used in Model 762. Model 782 uses Part #B-11.256.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Wilcox-Gay PART No.	NOTES
	OHMS	WATT		
R3	390K		D-7.101-125	
R4	4.7meg		D-7.101-178	
R5	220K		D-7.101-114	
R6	100K		D-7.101-100	
R7	100K		D-7.101-100	
R8	10K		D-7.101-58	
R9	1meg		D-7.101-141	
R10	47K		D-7.101-86	②
R11	1meg		D-7.101-141	
R12	68K		D-7.101-93	
R13	2200Ω		D-7.101-30	
R14	220K		D-7.101-114	
R15	2.2meg		D-7.101-155	
R16	220K		D-7.101-114	
R17	47K		D-7.101-86	
R18	470K		D-7.101-128	
R19	4700Ω		D-7.101-44	
R20	220K		D-7.101-114	

ITEM No.	RATING		Wilcox-Gay PART No.	NOTES
	OHMS	WATT		
R21	470K		D-7.101-128	
R22	270Ω	2	D-7.103-62	
R23	10K		D-7.101-58	
R24	100K		D-7.101-100	
R25	5600Ω		D-7.101-48	
R26	10meg		D-7.101-191	①
R27	1000Ω		D-7.101-16	
R28	150K		D-7.101-107	
R29	10meg		D-7.101-191	
R30	10meg		D-7.101-191	
R31	1.5meg		D-7.101-148	
R32	1meg		D-7.101-141	
R33	10meg		D-7.101-191	
R34	3.3Ω	7(WW)	D-6.215-13	
R35	33Ω	1	D-7.102-227	
R36	470Ω	2	D-7.103-72	
R37	4700Ω	1	D-7.102-51	
R38	100K		D-7.101-100	

① In models using GT20 a 15meg is used in this application (Part #D-7.101-198). Not used in model using GT2N241A.
② Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	Wilcox-Gay PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V@ .30A	540VCT @.100A	5V@ 2A	C-9.262						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V@ 3.5A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Wilcox-Gay PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7900Ω CT	600Ω	C-9.277							
		SEC2 3-4Ω CT								

ELECT. PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	PRI	SEC.	REPLACEMENT DATA Wilcox-Gay PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1 L2	Bias Osc. Coil Trap Coil	44Ω 42Ω		B-1. 557 B-1. 556					Tapped@ 14Ω

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA Wilcox-Gay PART No.	QUAM PART No.	NOTES
SP1 SP2	5"x7" 4"	PM PM	3-4Ω 6-8Ω	C30. 355-1 ① C-30. 345-2①	57A21 ① 4A1Z6 ①	① Parallel And Phase

MISCELLANEOUS

ITEM No.	PART NAME	Wilcox-Gay PART No.	NOTES
M1	Lamp	45-2036-1	NE51
M2	Lamp	45-2036-1	NE51
M3	Switch	B-11. 250	On-Off Model 762
	Switch	B-11. 255	On-Off Model 782
M4	Switch	B-11. 254B	Function (Rotary Wafer, Spring Return Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

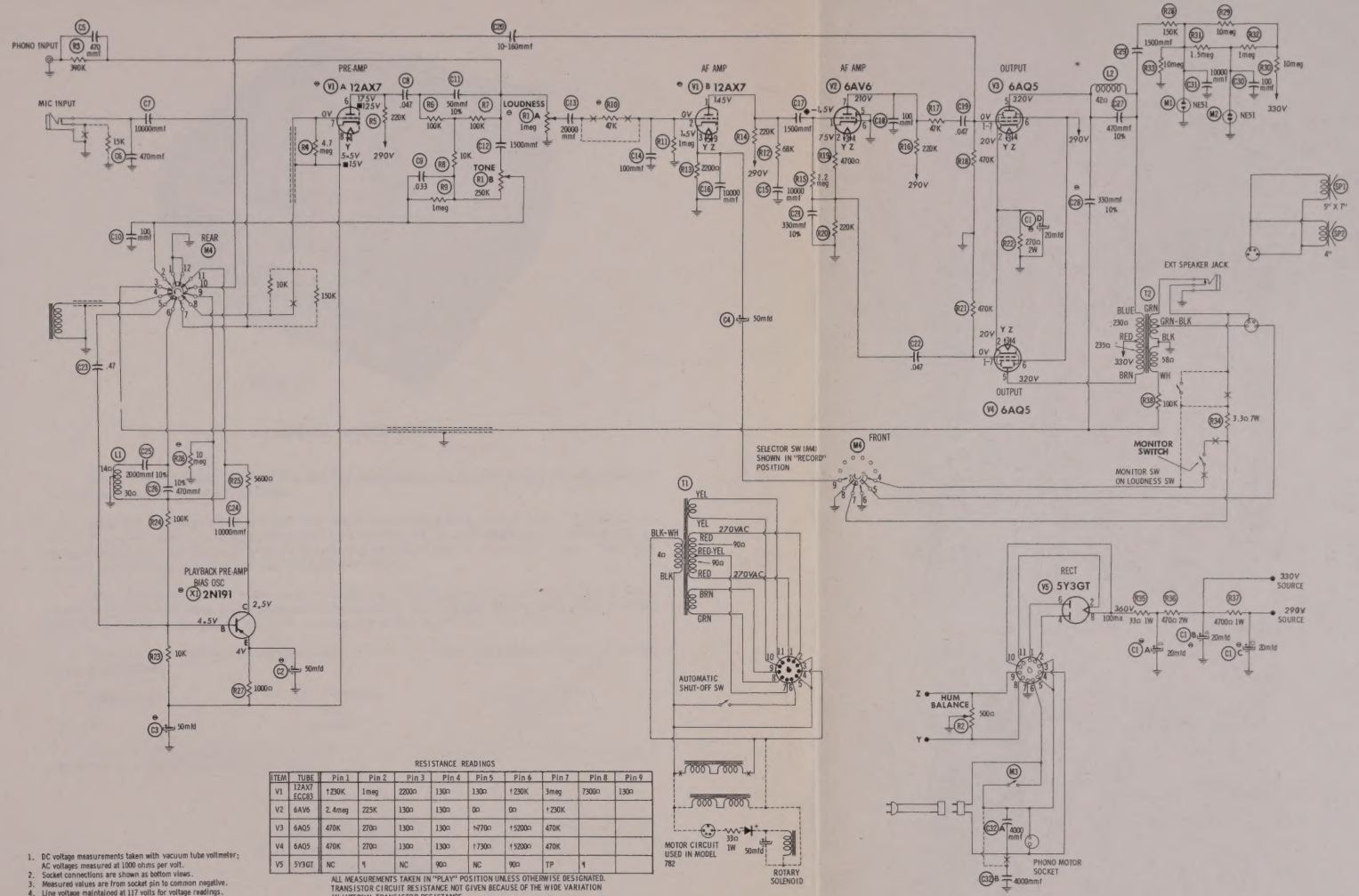
NAME	PART NO.	DESCRIPTION
Knob	B-13. 358	Volume
Knob	B-13. 359	Tone
Knob	B-13. 361	Power, On-Off

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW

2N191



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7 ECC83	†230K	1meg	2200Ω	130Ω	130Ω	†230K	3meg	7300Ω	130Ω
V2	6AV6	2.4meg	225K	130Ω	130Ω	0Ω	0Ω	†230K		
V3	6AQ5	470K	270Ω	130Ω	130Ω	¶470Ω	†5200Ω	470K		
V4	6AQ5	470K	270Ω	130Ω	130Ω	†730Ω	†5200Ω	470K		
V5	5Y3GT	NC	¶	NC	90Ω	NC	90Ω	TP	¶	

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 8 OF V5.
• MEASURED FROM PIN 2 OF V2.
■ MEASURED IN "RECORD" POSITION.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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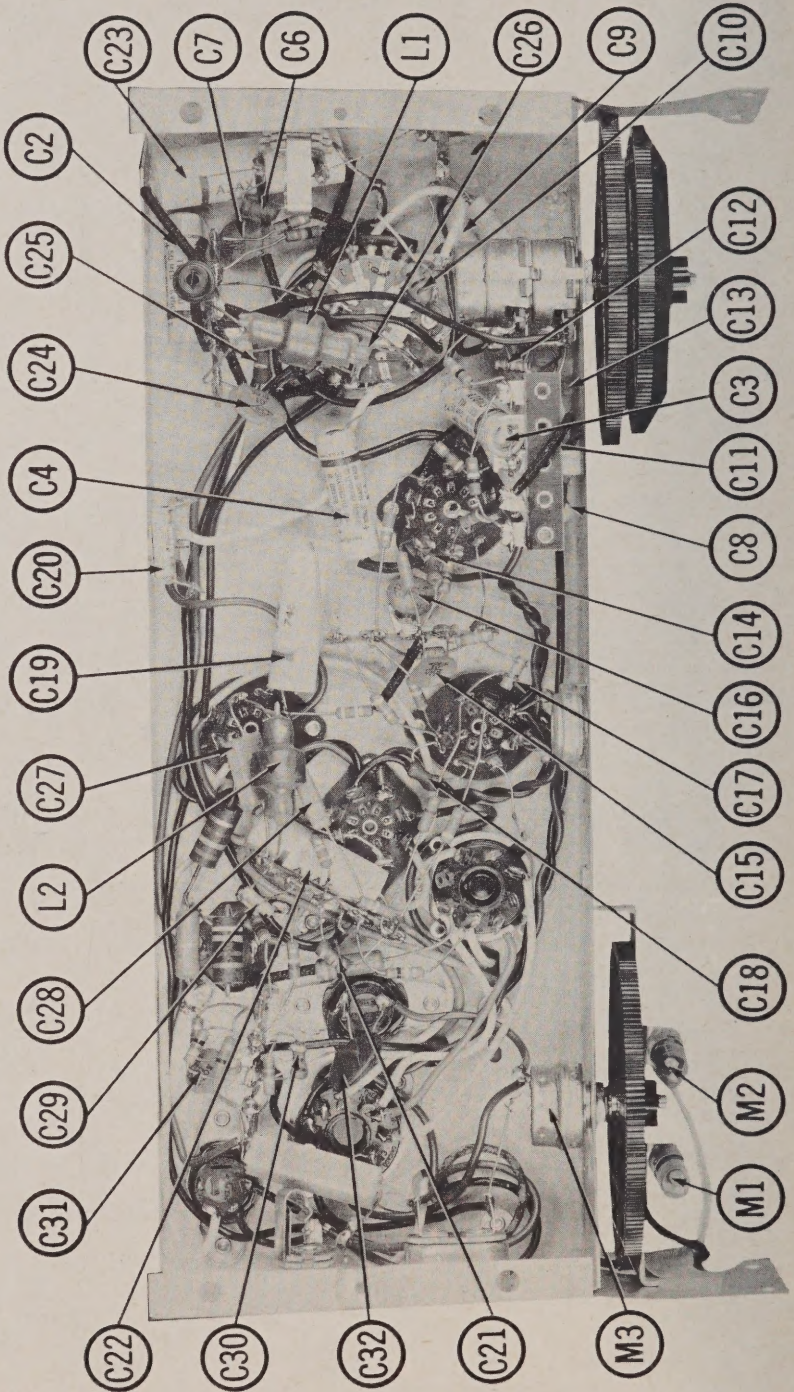
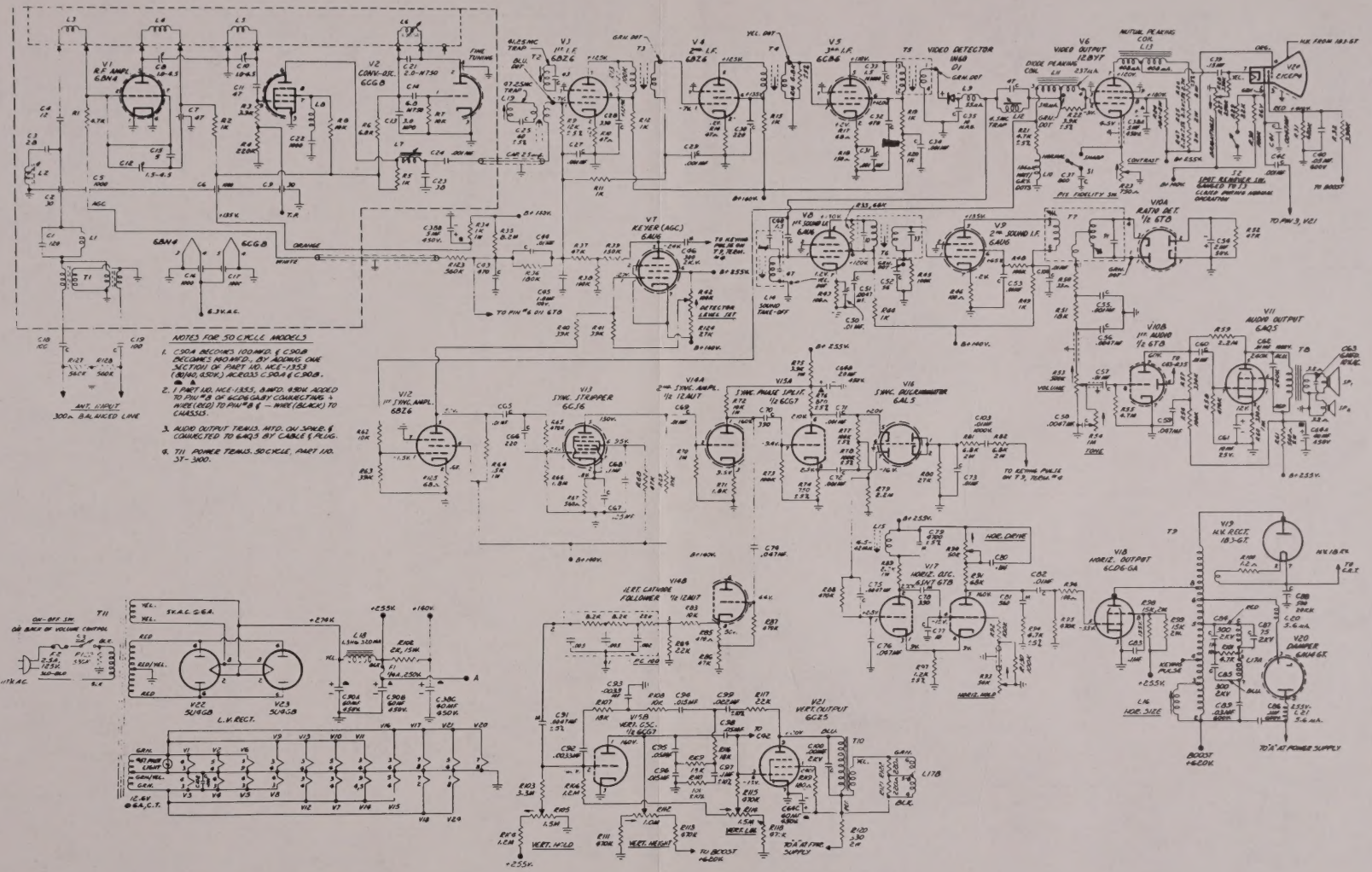
WILCOX-GAY MODELS 762, 782



AMP CHASSIS - BOTTOM VIEW

FOLDER 13


NOTES FOR 50 CYCLE MODELS
1. C90A BECOMES 100 MFD., & C90B BECOMES 150 MFD., BY ADDING ONE SECTION OF PART NO. ACE-1353 (80 MFD, 450V.) ACROSS C90A & C90B.
2. T PART NO. ACE-1355, 8 MFD, 450V. ADDED TO PIN #8 OF 6CG6 & BY CONNECTING + WIRE (RED) TO PIN #8 & - WIRE (BLACK) TO CHASSIS.
3. AUDIO OUTPUT TRANS. MTD. ON SPKR. & CONNECTED TO 6AQ5 BY CABLE & PLUG.
4. T11 POWER TRANS. 50 CYCLE, PART NO. 37-3001.
ANT. INPUT 300Ω BALANCED LINE
V1 R.F. AMPL. 6BN4
V2 CONV.-OSC. 6CG8
V3 1ST I.F. 6BZ6
V4 2ND I.F. 6BZ6
V5 3RD I.F. 6CB6
V6 VIDEO OUTPUT 12BY7
V7 1ST SOUND I.F. 6AU6
V8 2ND SOUND I.F. 6AU6
V9 RATIO DET. 1/2 6T8
V10 1ST AUDIO 1/2 6T8
V11 AUDIO OUTPUT 6AQ5
V12 1ST SYNC. AMPL. 6BZ6
V13 SYNC. STRIPPER 6CJ6
V14 2ND SYNC. AMPL. 1/2 12AU7
V15 SYNC. PHASE SPLIT. 1/2 6CG7
V16 SYNC. DISCRIMINATOR 6AL5
V17 HORIZ. OSC. 6JN7 GTB
V18 HORIZ. OUTPUT 6CD6-GA
V19 H.V. RECT. 1B3-GT
V20 DAMPER 6BQ4-GX
V21 VERT. OUTPUT 6GZ5
V22 5U4GB
V23 5U4GB
V24 1ST CATHODE FOLLOWER 1/2 12AU7
V25 VERT. OSC. 1/2 6CG7
REYER (AGC) 6AU6
DETECTOR LEVEL 1ST
VIDEO DETECTOR 1N60
PIX FIDELITY SW.
CONTRAST
VOLUME
TONE
HOR. DRIVE
HOR. SIZE
VERT. HOLD
VERT. HEIGHT
VERT. LIN.
BOOST +600V.
TO 'A' AT POWER SUPPLY
TO PIN 3, V21
TO BOOST
TO 'A' AT FINE SUPPLY
L.V. RECT.
12.6V @ 6.6A, C.T.
117V A.C.
ON-OFF SW. ON BACK OF VOLUME CONTROL
PILOT LIGHT
6.3V A.C.

ANDREA MODELS C-VQ21-110, LB-VQ21-110, MC-VQ21-110, MLB-VQ21-110, 2LB-VQ21-110 (CH. VQ21-110)

Schematic Diagram Courtesy ANDREA RADIO CORP.

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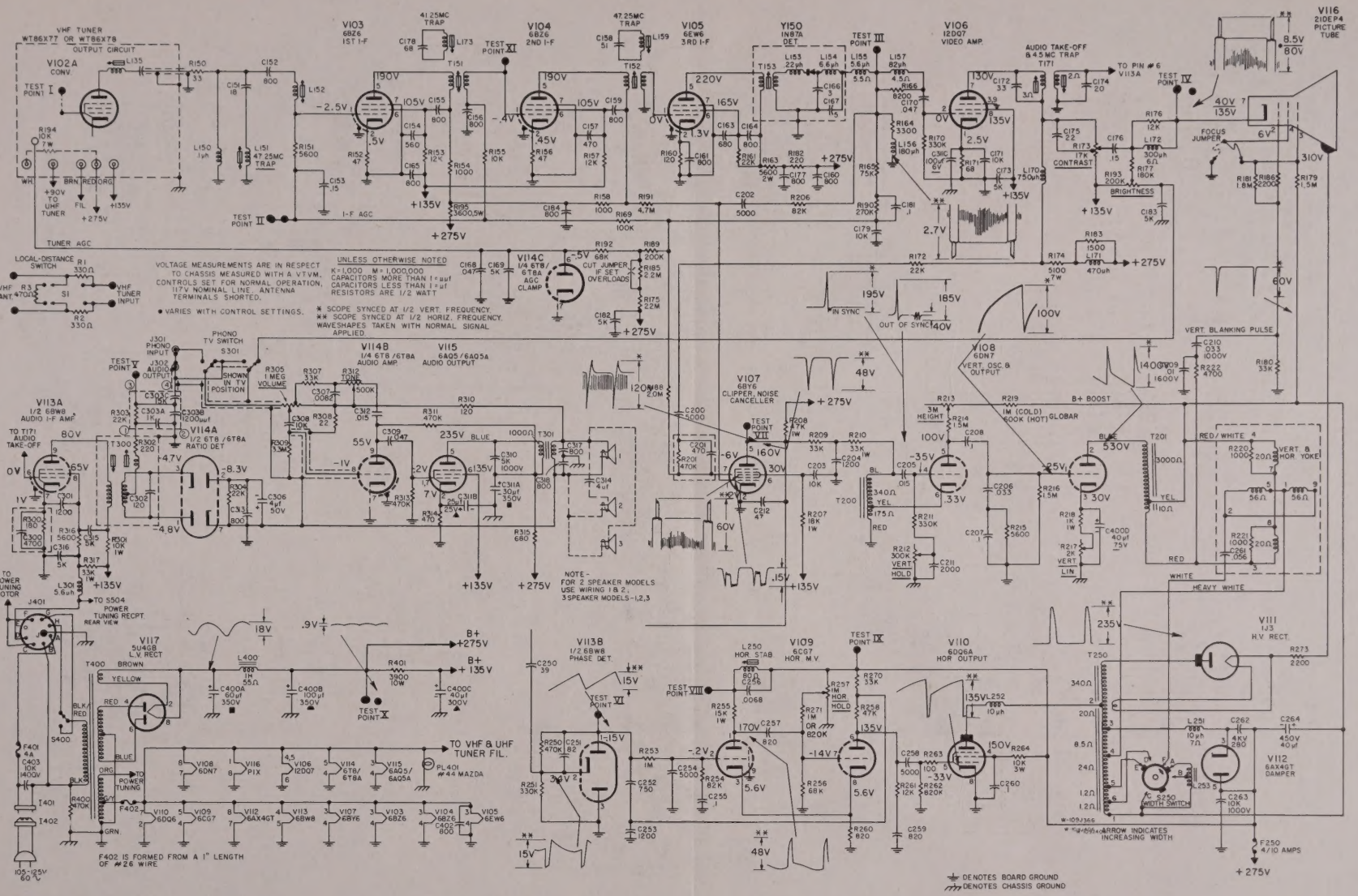
VHF TUNER WT86X77 OR WT86X78
OUTPUT CIRCUIT
V102A CONV.
V103 6BZ6 1ST I-F
V104 6BZ6 2ND I-F
V105 6EW6 3RD I-F
41.25MC TRAP
47.25MC TRAP
V150 IN87A DET.
V106 12DQ7 VIDEO AMP.
AUDIO TAKE-OFF 4.5 MC TRAP
V116 21DEP4 PICTURE TUBE
TEST POINT I
TEST POINT II
TEST POINT III
TEST POINT IV
TEST POINT V
TEST POINT VI
TEST POINT VII
TEST POINT VIII
TEST POINT IX
TEST POINT X
TEST POINT XI
TUNER AGC
I-F AGC
+135V
+275V
CONTRAST
BRIGHTNESS
FOCUS JUMPER
LOCAL-DISTANCE SWITCH
VHF ANT. 300Ω
VHF TUNER INPUT
VOLTAGE MEASUREMENTS ARE IN RESPECT TO CHASSIS MEASURED WITH A VTVM, CONTROLS SET FOR NORMAL OPERATION, 117V NOMINAL LINE. ANTENNA TERMINALS SHORTED.
• VARIES WITH CONTROL SETTINGS.
UNLESS OTHERWISE NOTED
K=1,000 M=1,000,000
CAPACITORS MORE THAN 1 mf
CAPACITORS LESS THAN 1 mf
RESISTORS ARE 1/2 WATT
* SCOPE SYNCED AT 1/2 VERT. FREQUENCY.
** SCOPE SYNCED AT 1/2 HORIZ. FREQUENCY.
WAVESHAPES TAKEN WITH NORMAL SIGNAL APPLIED.
V114C 1/4 6T8/6T8A AGC CLAMP
CUT JUMPER IF SET OVERLOADS
PHONO TV SWITCH
J301 PHONO INPUT
J302 AUDIO OUTPUT
S301 SHOWN IN TV POSITION
R305 1 MEG VOLUME
V114B 1/4 6T8/6T8A AUDIO AMP.
V115 6AQ5/6AQ5A AUDIO OUTPUT
V113A 1/2 6BW8 AUDIO I-F AMP.
V114A 1/2 6T8/6T8A RATIO DET.
V107 6BY6 CLIPPER, NOISE CANCELLER
V108 6DN7 VERT. OSC. & OUTPUT
IN SYNC
OUT OF SYNC
VERT BLANKING PULSE
B+ BOOST
1M (COLD) 600K (HOT) GLOBAR
HEIGHT
VERT. LIN.
VERT. HOLD
RED/WHITE
VERT. & HOR. YOKE
BLUE
YEL.
RED
WHITE
HEAVY WHITE
TO T171 AUDIO TAKE-OFF
TO POWER TUNING MOTOR
J401
TO S504 POWER TUNING RECPT. REAR VIEW
V117 5U4GB L.V. RECT.
T400
BROWN
YELLOW
BLK/RED
BLUE
ORG.
GRN.
S400
F401 4A
F402 1A
T401
T402
105-125V 60~
F402 IS FORMED FROM A 1" LENGTH OF #26 WIRE
TO VHF & UHF TUNER FIL.
PL401 #44 MAZDA
V108 6DN7
V116 P1X
V106 12DQ7
V114 6T8/6T8A
V115 6AQ5/6AQ5A
V110 6DQ6
V109 6CG7
V112 6AX4GT
V113 6BW8
V107 6BY6
V103 6BZ6
V104 6BZ6
V105 6EW6
V113B 1/2 6BW8 PHASE DET.
V109 6CG7 HOR. M.V.
V110 6DQ6A HOR. OUTPUT
L250 HOR. STAB
HOR. HOLD
OR
V111 1J3 H.V. RECT.
V112 6AX4GT DAMPER
T250
T200
T201
T301
L400
L401
L252
L253
L254
L255
L256
L257
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L260
L261
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